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A Buttenheim Publication

Contractors and Engineers

magazine of modern construction

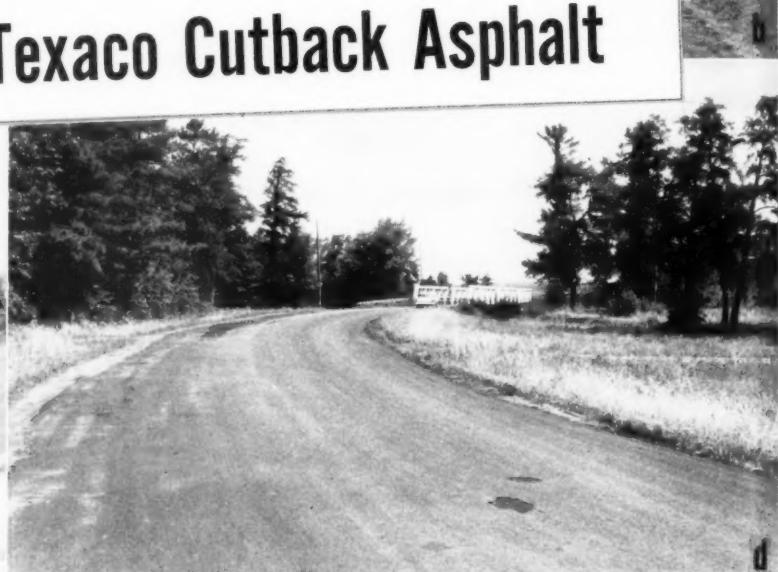
Placing concrete for warehouse ramp

Page 160



First step

in the Stage Construction of a Highway



Soil stabilization with Texaco Cutback Asphalt

- a. Applying a medium-curing Texaco Cutback Asphalt to windrow of soil.
- b. Pulvi-mixer and motor grader blend Cutback Asphalt and soil.
- c. Compacting Texaco-treated soil with multi-wheel and tandem rollers.
- d. Completed soil stabilization project in Wadena County, Minn.

Wadena County, Minn., is building this road by stages, thus spreading the cost over a period of years. Pictured here is the first stage. The cohesionless soil on the road is being stabilized by a thorough blending with a Texaco Medium-curing Cutback Asphalt. This transforms the formerly dusty, muddy road into a durable, waterproof, all-weather surface.

Eventually, when the increased volume and weight of traffic require it, the Texaco-stabilized surface will become the foundation for a heavy-duty, hot-mix asphaltic concrete wearing surface, two to three inches thick.

The new surface will form a close, lasting bond with the previously stabilized base. The result is a flexible, rugged pavement, which absorbs heavy impact year after year with a minimum of maintenance.

Whether you are building or improving a road, street, airport or parking area, there is a type of Texaco asphalt construction exactly suited to your requirements. These types range from heavy-duty paving for interstate highways down to an inexpensive surface-treatment to eliminate dust and mud. Helpful information on all of these asphalt types is supplied in two free booklets. Copies can be obtained without obligation by writing our nearest office.

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York 17

Boston 16 (20 Providence St.) • Chicago 4 (332 So. Michigan Ave.) • Houston 1 (720 San Jacinto St.)
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TEXACO ASPHALT

For more facts, use Request Card at page 18 and circle No. 201

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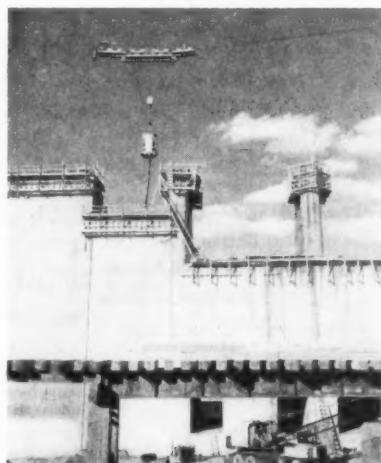
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Contractors and Engineers

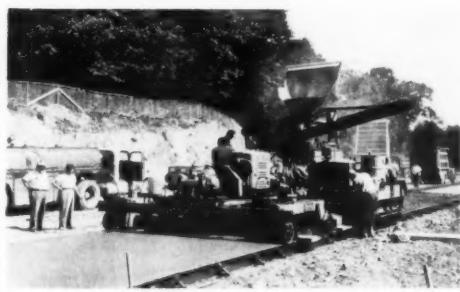
magazine of modern construction



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Reciprocal trade and construction

In this period of economic decline, the renewal of the present trade agreement law, which expires on June 30, is of importance to all industry and to the construction industry in particular. Our liberal foreign trade policy has been almost universally supported since 1934, when we entered into agreements with other nations for the mutual reduction of tariffs. This reciprocal tariff has worked well, despite the various protective amendments that were inserted at the behest of groups which feared competitive imports. But as the country now adjusts its economy, the tariff and its amendments are being more closely scrutinized and even criticized.

Attention was recently focused on an amendment concerning national security, which was intended to protect U. S. industries considered essential to defense. A complaint came from General Electric Co. after the U. S. Bureau of Reclamation had awarded half-million-dollar contracts to Italian firms to supply five transformers for the Missouri River basin project. G. E. contended that U. S. manufacturers make more reliable equipment than do foreigners; have better facilities for repairs; can fill orders more promptly; and therefore should be given preference in obtaining the work. Thus encouraged, the domestic industry would be ready for emergency defense production.

British, Italian, and Swiss firms have been supplying equipment on power projects for the Corps of Engineers, Bonneville Power Administration, Tennessee Valley Authority, and the Bureau of Reclamation. Such foreign firms have been successful in getting work despite another trade agreement act amendment, stipulat-

ing that government agencies may not buy abroad unless the bid is six per cent below the lowest American bid. British manufacturers were quick to refute G. E.'s claim, pointing out that imported foreign equipment must meet rigid specifications and tests by government agencies, and that they have adequate repair facilities in neighboring Canada.

Actually U. S. companies have not fared badly in competition with electrical-equipment manufacturers from abroad. During the 1952-56 period, domestic production by U. S. companies totaled \$9 billion as compared to \$49 million worth of foreign imports in power equipment. Last December, G.E. underbid two foreign competitors to get a million-dollar transformer contract for Fremont Canyon development project, Wyoming. Last month the company underbid foreign and domestic manufacturers with a low \$8.9 million figure for seven electric generators for use at Oahe Dam.

Most American manufacturers in the construction-machinery business are in favor of extending the trade agreements act. William Blackie, executive vice president, Caterpillar Tractor Co., testifying before the House Ways and Means Committee, stated that the most significant aspect of his company's growth was the extent to which it had been derived from an increase in foreign business. He referred to the last quarter of 1957 when foreign business for his company exceeded 50 per cent of the total. While domestic sales for 1957 had fallen 13 per cent, Caterpillar's foreign business had increased 9 per cent. Blackie commented, too, that "The jobs of millions of Americans are 'protected' not by tariffs designed to obstruct the inflow of foreign goods, but by the ability of companies like ours to export. If we are able to help our country by helping ourselves, we need more opportunity to export, not less."

The above photo illustrates a typical example of American export, as a Worthington dual-drum concrete



paver is loaded aboard ship at a New York pier for use in airfield and highway construction on Formosa.

Four other leading U. S. manufacturers in earthmoving equipment—Allis-Chalmers, Clark Equipment, International Harvester, and LeTourneau-Westinghouse—in cooperation with Time International recently conducted a survey to analyze current and potential markets abroad for U. S. equipment. The survey indicated that three-quarters of the customers for U. S. construction machinery overseas are private firms, while one-quarter are on government projects. Also of significance was the finding that outside of the U. S., Canada, and Communist-controlled countries, Europe accounts for more than half of all world construction activity. Also, that during the next 15 years, \$90 billion will be spent on highway construction in free world foreign countries.

One other outstanding feature of the survey was the report on the predominating role played by U. S. construction machinery in Europe, Latin America, Africa, the Middle East, Asia, and the Pacific. Our two nearest competitors, England and Germany, are far behind the U. S. in this respect.

With the Soviet Union emphasizing a global economic drive in the development of countries abroad, our own economic security and national safety are closely linked to our commerce with other nations. These nations want to buy our exports, but they cannot do so unless reciprocal trade is assured.

CONTRACTORS AND ENGINEERS

issued monthly

A BUTTENHEIM PUBLICATION

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The American City *The School Executive*



Acceptance under Section 34.64 P. L. & R. Authorized at Lancaster, Pa. Vol. 55, No. 5
\$5 a year, \$1 a copy in the United States and Canada. \$8 a year in other countries.

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A ramp leading to the roof parking deck is only one of the features of the Line Material warehouse in South Milwaukee, Wis. A Koehring 205 bucket truck ready-mixed concrete to the forms. The columns to the right of the ramp will be used to lift the concrete roof slabs into place.

Page 160

This mechanical culvert cleaner, developed by T. D. Thompson, center, of the State Highway Commission of Kansas, has two scraper blades that clean out the dirt from a culvert. The blades swing to a horizontal position when the cleaner is pulled back through the pipe.

Mechanical cleaner frees dirt-filled culverts in 20 minutes

Keeping highway entrance culverts, box bridges, and drainage culverts clean and free of sand, mud, and weeds used to be a maintenance headache for the State Highway Commission of Kansas. That was before the commission pooled its ideas for a mechanical culvert cleaner and, with the help of district supervisor T. D. Thompson, came up with one that can do a thorough job in 20 minutes.

Cleaner design

Thompson's cleaning machine is simple in design and requires no special equipment to operate. The cleaner, shaped like a boat, is pointed at each end and has two scraper blades hung vertically between the runners. The blades clean out the dirt and then swing into a horizontal position when the cleaner is pulled back through the culvert. Thompson has applied for a patent on the scraper-blade feature.

The cleaner is pulled back and forth through the culvert by means of a cable attached to a truck, tractor, motor grader, or other piece of motor equipment at each end of the culvert.

Other cleaners

Thompson has made three different size culvert cleaners that are identical in operation, but of different widths. One is 18 inches wide; a second, 24 inches; and the largest, 36 inches. Any one of them, as long as it is smaller than the culvert, will do the job. The 18-inch cleaner will do good work in a 36 x 36 box, but it takes a little longer.

If the soil is tightly packed in the culvert, well rods must be used to probe through the structure and make way for the cable.

The highway commission has found that this method of culvert cleaning is far more effective than using hand tools. With the old hand-tool method, the culvert would be filled with blowing dirt an hour after cleaning.

Movie on pole method of building construction

"Twice for the Money" is a 17-minute 16-mm color and sound film on pole-type construction of buildings. The film shows many examples of the pole-construction technique. Part of the film shows contractors how to present the pole-building story to customers. The movie may be obtained from The Dow Chemical Co., Midland, Mich.

MAY, 1958



ARCOLE MIDWEST CORPORATION, Evanston, Ill., is its own biggest subcontractor. Building highways, bridges and other super-projects at a multimillion-dollar-a-year clip—Arcole does everything except electrical work and painting—everything from earth-moving, to concrete, to landscaping—entirely within its own organization! This takes a fleet of hundreds of trucks, many rubber-tired scrapers, an army of other equipment—and real "teamwork"! Loader shown here rolls on SURE-GRIP by Goodyear



TIRE INSPECTION and maintenance never let down. Here, a new HARD ROCK LUG, by Goodyear, is being carefully checked in.



Like steel, tire cord must be tempered to be tough. Goodyear's exclusive 3-T process, involving Tension, Temperature and Time, triple-temper cord to make it TRIPLE-TOUGH—to give you longest tire life, lowest cost-per-yard.

For more facts, use Request Card at page 18 and circle No. 202

Here's why Triple-Tough 3-T Nylon Cord Tires move more yards for less:

TRIPLE-TOUGH 3-T NYLON CORD—a Goodyear exclusive—is the greatest tire saver in 23 years.

3-T Nylon Cord is so extremely resistant to stretch, water damage, bruise-break and blowout—that Goodyear tires built with it cut downtime to new LOWS.

THIS SAVES YOU the expense of idle men and equipment. Final tire cost can also hit new LOWS because 3-T Nylon Cord keeps tires strong for recap after recap.

Test this Goodyear performance—made possible by TRIPLE-TOUGH 3-T NYLON CORD—against any tires on any jobs. We'll rest our case on your findings. Goodyear, Truck Tire Dept., Akron 16, Ohio.

Buy and Specify Tubeless or Tube-Type

GOOD YEAR



MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND
All-Weather, Road Lug, Sure-Grip—T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio



Drilling starts rock excavation for the regrading in Fourth of July Canyon in Idaho. Drill steel is changed on a Gardner-Denver 123, which works from a Joy Hydrojib. The Cat D8 carries a Gardner-Denver 500-cfm compressor at the rear.

Shot rock is loaded into a Euclid by a Bucyrus-Erie 71-B shovel with an Esco 3½-yard dipper. There are six Euclid end-dumps, all of them new, in the contractor's 8-unit fleet.



2 methods of rock excavation speed highway regrading job

Heavy traffic is carried through work as joint venture

carves out new route under large Idaho contract

(See companion article, page 11)

Ripping and blasting more than 1.8 million cubic yards of rock and dirt, a construction squad armed with power shovels, scrapers, tractors, trucks, and other equipment widened and rebuilt a 7.2-mile section of U. S. 10 through Fourth of July Canyon east of Coeur d'Alene, Idaho. The \$2.7 million contract, one of the largest ever awarded by the state, included a crushed-rock base and a bi-

tuminous pavement. Paving is scheduled to be started next month and completed by September.

The general contractor is a joint venture of the Fred H. Slate Co. and E. C. Hall Co., of Portland, Ore. The project, part of the Interstate System, was planned by the Idaho Department of Highways and is being supervised by the Coeur d'Alene District.

Fourth of July Summit and the canyons leading to it are well known to many people, for this beautiful site is on one of the main tourist routes leading to the Pacific Northwest. The heavy tourist traffic, together with a steady flow of logging trucks, creates a major problem for the contractor. There is no possible detour, and the traffic must be carried through the work at all times.

Overhanging rock ledges had to be shot off, bit by bit, to minimize traffic delays. The many culverts crossing the roadway had to be placed piecemeal so that traffic could continue to use half of the roadway while pipe was being placed in the other half. Not the least of the problems was the hazard of mingling heavy equipment and highway traffic on the roads and in the narrow confines of



One of the International Payhaulers end-dumps rock on the grade. The Cat D8 tractor-dozer is moving in to level off the material to a thickness of about 2 feet.



Though the contractor originally planned to shoot all the rock, he found he was able to rip and load material with the combination of big tractor, ripper, and scraper. The DW21 is helped to a full load by a Cat D9 with No. 9 ripper.



The push-tractor picks the rear wheels of the DW21 right off the ground as the scraper starts loading the rippled rock. Though the material is difficult to handle, the scraper picks up a full load with a pushing assist.

the canyon. Flagmen were among the most important workmen on the job.

Slate and Hall lost no time getting started, once the contract was awarded. Log jammers, chain saws, and other logging and clearing equipment were rented from local operators to get the 135 acres of clearing and grubbing started immediately. Some rock excavation was started, but deep snow and soft roads shut down the operation for about six weeks during the winter.

When the job got back in full swing, it operated two 9-hour shifts, five days a week, with a crew of 170 and a big spread of heavy equipment.

Tractor-mounted drills

Most of the 1.8 million yards of excavation was rock, and much of the rock had to be shot. Four self-contained drilling rigs mounted on Caterpillar D8 tractors handled most of the drilling for the excavation. Each of these rigs consisted of a Gardner-Denver 123 drill on a Joy Hydrojib on the front of the tractor. A compressor was mounted at the rear of the tractor. Two of the rigs had Ingersoll-Rand 600-cfm Gyro-Flo compressors mounted crosswise on the rear of the tractor. One had a Le Roi 600-cfm compressor powered directly from the power takeoff of the tractor. The fourth had a Gardner-Denver 500-cfm compressor, belt-driven from the tractor engine.

Using Timken carbide-insert bits, the units usually drilled 3½-inch holes in lifts of from 20 to 30 feet. On some very deep cuts, a big Joy Challenger drill was brought in to drill as much as 70 feet in a lift.

The holes were loaded with Pacific Powder Co. 40 per cent gelatin dynamite and Flodyne free-flowing bag powder. The shots were detonated electrically, and Hercules instantaneous and delay caps were used in a variety of patterns, depending on the conditions.

Two big shovels loaded most of the shot rock. One, a Bucyrus-Erie 71-B, used an Esco 3½-yard dipper; the other had an Esco 2½-yard dipper. The rock was hauled to the fills by two new International 16-yard Pay-haulers and six new Euclid end-dumps. A 2-foot lift of this shot rock was used to top out the grading section. The rock was end-dumped on the grade and pushed ahead to proper depth and shape by a Caterpillar D8 tractor-dozer. This was followed by three courses of base material with a total compacted depth of 8 to 9 inches.

Tractors rip rock

Although the contractor had planned to shoot most of the rock, he brought in two Caterpillar D9 tractors with rippers. One of the tractors had a Caterpillar No. 9 ripper and the other an Ateco ripper. When these big machines started tearing into the rock, they were able to rip about half the material the contractor planned to shoot.

(Continued on next page)

Installation of culverts and drilling goes on as cars continue using the open half of the road. The Lima Paymaster with PMCO 3½-yard bucket backfills a culvert on one side of the road. On the ledge, a tractor-mounted drill puts down holes for blasting.



"The No. 933 TRAXCAVATOR is the only tool for us when we're working in tight corners"

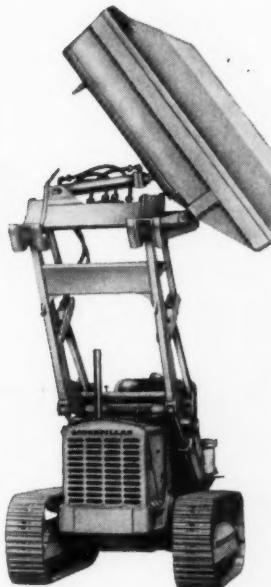
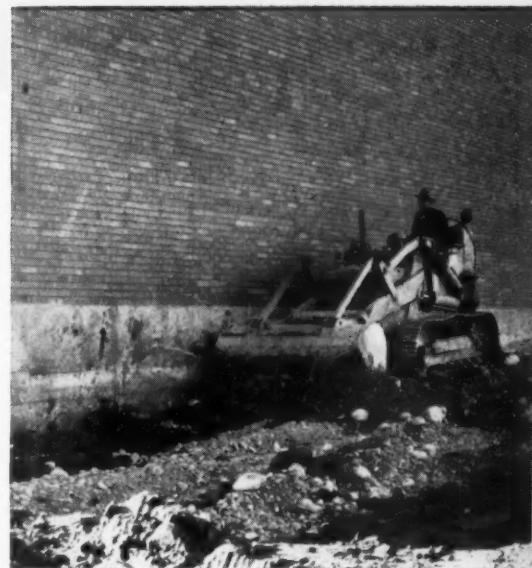
HAT's the word from Deane L. Jensen of Long Construction Company, Inc., Billings, Montana. Operator C. L. Clark agrees. "It's a nice little rig. Handy for an operator because you can do anything with either hand. You can operate the bucket with the right hand and shift with the left. Loading out of a bank, I've loaded as high as 80 cubic yards an hour. I've backfilled in buildings in places so small you had to have the bucket clear up to turn around. Had it in places 24 feet square with a wall all around."



In the pictures on this page you see Mr. Clark and his Cat No. 933 Traxcavator working on a parking lot, street and driveways for the Fair Lane Shopping Center in Billings. The "nice little rig" scoops out dirt for loading onto trucks, spreads gravel for street foundation, dumps trash. 4,500 cubic yards of material were brought here by truck and spread by the No. 933. The Traxcavator sandwiched in this work with other construction jobs in the area for Long Construction Co.

See a demonstration of the No. 933 right on your job. Call your Caterpillar Dealer today. And after the demonstration, have him explain how his expert service and factory-quality replacement parts will protect your investment in Cat-built equipment.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.



The No. 933 offers a standard bucket of 1 cu. yd. capacity. Also available, as a directly interchangeable attachment, is this new 1½ cu. yd. Side Dump Bucket which dumps to the left as well as forward.

CATERPILLAR

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**HARD-WORKING,
LONG-LASTING,
LOADER VERSATILITY**

For more facts, use Request Card at page 18 and circle No. 203



A Gardner-Denver drill, one of the four drills on the job, gets a 3½-inch blast hole into the rock with a Timken carbide-insert bit. An Ingersoll-Rand 600-cfm Gyro-Flo compressor, mounted crosswise on the tractor, supplies air.

lanes, a 6-foot median, and 4-foot-wide paved outside shoulders.

Where the grade was not already in rock, a lift of 2 feet of shot rock was spread on the subgrade and shaped by dozers. The first base course over this was a single 0.3-foot course of 1-inch-minus crushed rock. Two additional base courses consisted of 0.2-foot lifts of minus ¾-inch crushed rock.

The crushed-rock base material was produced in a quarry off the right-of-way about five miles from the job. (See "Portable Plant Tackles Big Crushing Job", pg. 11.) The truck

fleet hauling the rock included two Macks, each of which pulled two Peerless 10-yard bottom-dump trailers. Other trucks in the spread were Ford and Mack 10-wheelers with 10-yard boxes.

The base was spread by Caterpillar No. 12 motor graders. Three of these were on the project. The material was watered to optimum moisture content, mixed and laid out by the graders, and rolled by a Case tractor pulling a Bros 13-wheel pneumatic roller. A Huber self-propelled 3-wheel steel roller followed.

Over most of the length of the proj-

(Continued from preceding page)

The rock broken up by the rippers was moved by scrapers. Three Caterpillar D8 tractors with Caterpillar 80 scrapers handled a large share of the short-haul material, while a spread of four Caterpillar DW21 scrapers with a Cat D9 pusher worked on the longer hauls. Even after it was ripped, loading this rock was not easy. It was not unusual for the push-tractor to lift the rear wheels of the scraper into the air to get the cutting edge into the ground.

The maximum cut on the job was 140 feet, and the highest fill was 110 feet. The largest single cut contained just over 150,000 cubic yards. Practically all of this yardage went into a big fill adjacent to the cut.

Placing culverts

Because there were a large number of minor drainage channels in addition to a number of creek crossings, an exceptionally large amount of culvert pipe had to be furnished and placed. Bid items included more than 11,000 linear feet of culvert ranging in size from 12-inch pipe to 126-inch corrugated pipe-plate arches.

The volume of pipe work was no particular problem, but getting the pipe placed while traffic was being maintained through the job did create a problem. In most cases, pipe was installed across half the width of the road while the traffic used the other half. After the pipe had been placed and the hole backfilled, traffic was detoured over this half while the remaining section of pipe was installed.

In some cases, especially where the new and old culverts did not line up, it was necessary to dig some temporary drainage diversion channels or block minor flows while the crews quickly installed the new culverts.

The culvert crews used a Lima Paymaster crane with a PMCO ¾-yard drag bucket to excavate the pipe trenches and place the heavy pipes. A hoe was also used for trenching. Backfill around the pipes was tamped with pneumatic tampers powered by a Gardner-Denver 210-cfm air compressor. Some of the smaller culverts were installed by a Ford tractor equipped with a Ford front-end loader and a Wagner hydraulic backhoe.

Placing base course

The grading section was finished to a 71-foot-wide top, which will be paved with four 12-foot-wide traffic



Up-to-date, streamlined lubrication method pays significant dividends in maintenance savings

Texaco Simplified Lubrication Plan

Plan can reduce lubricant inventory and improve lubrication. It can mean more productive man-hours, less repair costs, less time lost

If you are using more than six lubricants for your major lubricating jobs, chances are your maintenance costs are a lot higher than they should be. Storage problems, handling costs, and the dangers of mis-

application are often costly results of stocking more lubricants than you need.

Texaco Plan cuts number of lubricants needed

Specifically tailored to your operation by your local Texaco Lubrication Engineer, this new plan can cut your requirements to not more than six lubricants for all your major lubrication needs. Yet

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ect, this base is being used by the traffic almost as soon as it is placed. In one area, it was possible to resurface and widen an old road for a detour. This gave the contractor one stretch, less than two miles long, where he could work without fighting traffic.

Personnel

The contractors, Elton D. Slate and Donald W. Hall, serve as joint project managers on the job. Hall looks after the rock production and crushing operations, while Slate supervises the road work. Each spends

several days a week on the site throughout the project.

The superintendent for the joint venture is James N. Leinbach. His staff for the regrading job included shift foremen James D. Luna, Lynn Johnson, John Dever, and Whitey Howell; powder foreman Elmer Erickson; pipe foreman Velton Case; clearing foreman James Huckaba; and master mechanic C. W. Dillon.

The district engineer for the Coeur d'Alene District of the Idaho Department of Highways is A. J. Sachse. Resident engineer on the project is Kurt Luerzer. Heading the construc-

tion branch of the Idaho Department of Highways is A. F. Rath. State highway engineer is G. Bryce Bennett.

THE END

Stone & Webster elects

Edwin H. Krieg has been elected a director of Stone & Webster Engineering Corp., Boston, Mass. The vice president and consulting engineer is a leading authority on the design of power plants, and is credited with numerous advances in the technical developments and in the use of prototype steam turbine-generators.

Prestressing methods shown in new film

A film on the manufacture of prestressed concrete, "Prestressed Concrete Methods," is available from the Florida Division of Food Machinery & Chemical Corp., Lakeland, Fla.

The basic methods involved in prestressing bridge beams, piling, and double tees are shown in the film, as well as the production of some of the largest prestressed girders ever cast.

The film is available, without charge, to anyone in the construction industry. Requests for the movie should be made at least two weeks in advance of a planned showing date.

Basic, practical concepts of soil-water freezing

Nine reports in the Highway Research Board's Bulletin 168, "Fundamental and Practical Concepts of Soil Freezing," discuss soil-water freezing. Three papers deal with the practical aspects of the relative thermal conductivities of different soils and pavements as they influence soil temperatures; the ability of engineers to compute pavement temperatures from data contained in weather reports; and loss and recovery of bearing capacity of a wide range of soil types.

Some evidence is given that the freezing-point depression at the ice-water interphase determines the soil-moisture tension that acts as the driving mechanism. Other evidence is presented to validate the theory that the upward flow of water toward the freezing zone is not accompanied by vapor diffusion; and experiments show that a capillary meniscus disappears as water comes into contact with the downward freezing ice lens. Additional measures have been made of the relative amounts of frozen and unfrozen water in various types of soils.

The \$4 bulletin is available from the HRB, 2101 Constitution Ave., Washington 25, D. C.

Ottawa attachments for Napco tractor

Napco Industries, Inc., Minneapolis, Minn., has recognized Ottawa Steel, Ottawa, Kans., as an approved attachment manufacturer for Napco equipment.

To date, Ottawa has designed two attachments specifically for the Napco Crab tractor. They are a $\frac{3}{4}$ -yard front-end loader, Model SS-44, and a backhoe, Model LX-44, which digs to a depth of $12\frac{1}{2}$ feet.

The Ottawa attachments are available from all Napco dealers, who are also prepared to mount them for buyers.

Kelly & Gruzen news

P. L. Griffith, engineer and management consultant, is now an associate of Kelly & Gruzen, architectural-engineering firm of New York, N. Y., Newark, N. J., and Boston, Mass. He now directs a client relations program and serves as advisor in general planning of the firm.



The Texaco Simplified Lubrication Plan is saving maintenance dollars on this big power house project. This impre-

sive excavation is over 4,000 feet long and between 40 and 90 feet deep.

is simple to put into action; it works smoothly; and above all, it will save you a significant amount of money.

How the Texaco Plan works

The Texaco Simplified Lubrication Plan is based on a proven combination of multi-purpose lubricants tailored to meet the particular requirements of your operation. Your Texaco Lubrication Engineer will work with you, going over all your lubrication needs to see that your operation gets the best in modern lubrication with the minimum number of lubricants.

Get the complete story

Your nearest Texaco Lubrication Engineer can

LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

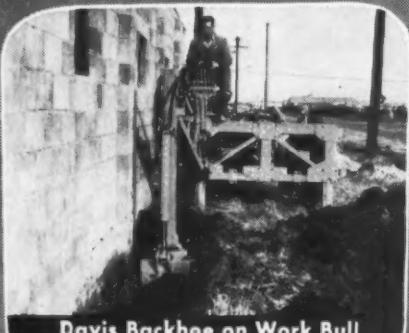
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MAY, 1958



NEW!



Davis Backhoe on Work Bull
202 digs flush!



Power-Matched Davis Loader
on Work Bull 202 has
greater reach.



The new Work Bull 1001 —
has instant reversing,
43° roll back!

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Look how the Davis Loader is matched to the Work Bull. Tractor has built-in mounting to eliminate necessity for bumper. Provides easy installation and service — plus greater reach out front. Scarifier, Fork Lift, Landscape Bucket, Angle Dozer, and Crane provide quick-change versatility.

The Davis Backhoe — the only machine in the world that can flush-dig — as well as handle normal digging assignments, features 10,000-pounds breakaway and exclusive seat that swings with boom so operator always faces his work. Five-minute detachability simplifies mounting other Massey-Ferguson Power-Matched attachments such as multi-purpose blade, scarifier-scraper, cable layer, tipping trailer, and others.



Other new Power-Matched Work Products include the Work Bull 1001 Multi-Purpose Tractor Loader convertible into eight different machines — the Work Bull 303 and 500 Loader, Work Bull Fork Lift, plus the famous Auburn Trencher for the Work Bull 202. Write for complete literature and name of dealer. Ask for Brochure G-4.

MASSEY-FERGUSON INDUSTRIAL DIVISION

1009 SOUTH WEST ST. • WICHITA 13N, KANSAS

For more facts, use Request Card at page 18 and circle No. 205



MASSEY-HARRIS-FERGUSON

Portable plant tackles big crushing job

Producing needed fines from tough rock source is big job for multi-stage, electric-powered plant

To produce a wide variety of aggregate sizes for rebuilding the Fourth of July Summit Highway, Slate & Hall, general contractor, has a Pioneer primary jaw crusher, three roll crushers, three vibrating screens, and two Telsmith cone crushers in the line.



Producing a variety of sizes of well-graded aggregates with a sufficient amount of fines was a tough and exacting part of the rebuilding of the Fourth of July Summit Highway near Coeur d'Alene, Idaho. The rock source produced a very high grade aggregate that was not easily broken down to produce ample quantities of the finer sizes.

To handle this job, the general contractor, Slate & Hall—a joint venture of Fred H. Slate Co. and E. C. Hall Co., of Portland, Ore.—used a setup containing six crushers and three big screens linked together with a string of conveyors. The big all-electric, all rubber-mounted portable plant not only produced the required fines, but also was able to turn out the base-course material at a rate of 200 tph.

The rock source designated by the Idaho Department of Highways was an outcropping of basalt rock located off the right-of-way about five miles from the job. The crushing and screening plant, with E. W. "Brownie" Yoder as superintendent, was set up on a hillside adjacent to the quarry site and the finished material was trucked to the job. The hot-mix plant for the paving will be set up on the same site this summer.

Quarry work

In the quarry, Slate & Hall used a Gardner-Denver Air Trac drill with Timken 3½-inch carbide-insert bits and a Gardner-Denver 500-cfm compressor. The quarry was worked in 40-foot lifts. The drill holes were loaded with Pacific 40 per cent dynamite and detonated electrically.

A 2½-yard shovel loaded the shot rock into three LeTourneau-Westinghouse Super C Tournatrailers with sliding 11-yard dump bodies. These rigs dumped directly into the 5-foot apron feeder leading to the primary crusher at the beginning of the long line of crushing and screening equipment.

The primary jaw crusher, three roll crushers, and three vibrating screens, as well as some auxiliary equipment, were all Pioneer. The setup also included two Telsmith cone crushers. Most of the conveyors and the trailer mountings for the units were fabricated in Hall's shops in Portland.

Units arranged in line

The first crusher in the line was a Pioneer 30×42-inch jaw crusher which was usually operated at a 3- (Continued on next page)

For more facts, use coupon or circle No. 206→

3 reasons why

PLYGLAZE® high-density* overlaid plywood

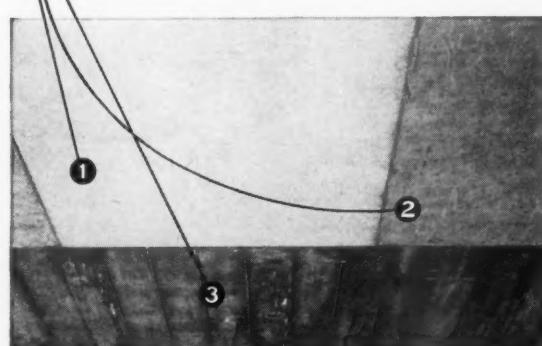
outperforms any form material on the market

1. FORMS SMOOTHER CONCRETE

Hard, glossy-smooth fused resin-fiber surfaces form flawlessly smooth concrete, with no trace of grain pattern. Unretooched photo shows marked difference in appearance quality of concrete cast against PlyGlaze, ordinary plywood and shiplap.

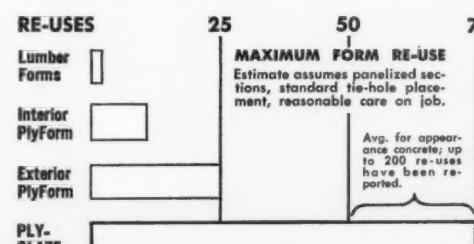
RELATIVE APPEARANCE OF CONCRETE

	Up to 50% of Max. Re-Use	Up to 100% of Max. Re-Use	Where to Use
1. PLYGLAZE	Excellent	Good	For smoothest concrete, maximum re-uses
2. PLYFORM	Good to Fair	Fair to Poor	For fairly smooth concrete, multiple re-uses
3. LUMBER	Poor	Very Poor	Where appearance and re-use not important



2. GIVES MANY MORE RE-USES

PlyGlaze's tough, hard surface stands up under hundreds of pours. With reasonable care, you'll easily get 50 to 75 re-uses. Actually over 200 have been obtained—and even then PlyGlaze continued to form good looking concrete.



3. HELPS CUT COSTS TWO WAYS

A. TIME & LABOR SAVINGS—Sharply reduces rubbing and finishing labor. Ceiling slabs can be painted direct, eliminating expensive plastering. PlyGlaze also cuts form construction, erection and stripping time. High re-use factor eliminates form reconstruction during job.

B. LOW COST PER USE—Even when cost is sole criterion, greater number of PlyGlaze re-uses frequently more than make up for higher initial cost, particularly where costs can be amortized over 25 or more pours.

COST PER-SQUARE-FOOT-PER-USE

No. Re-Uses > 1	10	25	50	100	200	
PLYGLAZE	\$0.375	.038	.015	.008	.004	.002
Exterior PLYFORM	.234	.023	.009			Gives Max. 25 Re-Uses
Interior PLYFORM	.218	.022				Gives Maximum 10-12 Re-Uses
LUMBER	.110					Gives Maximum 2-3 Re-Uses

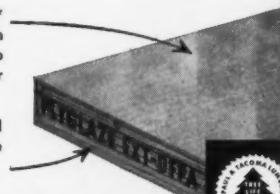
Estimates based on 30 month average for prices quoted by St. Paul & Tacoma for following material delivered in Chicago: 3/8" PlyGlaze; 3/4" Ext. & Int. PlyForm, mill oiled, edge sealed; 2" & br. 1" green Douglas fir or hemlock.

POINTS IN BRIEF

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- Strips easily; the non-absorbent surfaces will not stick to the concrete.
- No oiling is needed between the pours other than to facilitate cleaning.
- Overlay will not soften or come loose. Unharmed by alkaline reaction.
- Overlay minimizes moisture pickup and the resultant loss of rigidity.

Hard, glossy, translucent high density* fused-resin fiber overlay bonded to both sides of panel. Resin content controlled to give exact amount of hardness and wear resistance required for form work.

Base panel is top quality DFPA-Inspected solid core Exterior fir plywood. Available in all standard sizes, thicknesses.



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*HIGH DENSITY (glossy, translucent overlay) is special concrete form panel. MEDIUM DENSITY overlay (opaque with texture similar to drawing paper) is paint grade; not for form work.



A LeTourneau-Westinghouse Super C Tournatrailer dumps rock from the quarry into the surge bin. From there a 5-foot apron feeder carries the rock to a 30×42-inch primary jaw crusher, the first unit in line.



Crushed materials go to the final Pioneer 4×20-foot screen over the surge bins, left. Oversize goes to a second set of Pioneer 40×22 roll crushers, right, and this material is recirculated over the 4×20-foot screen.

MODEL C-362
36 H.P.
Other Models
Gasoline or Electric
Priced from \$395

The All NEW *Clipper* "SAILS RIGHT THRU" **36 H.P. SELF-PROPELLED CONCRETE SAW**

features

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- POSITIVE BALL BEARING SCREW FEED
- 6 STEEL-CABLE-REINFORCED V-BELTS

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OVER 36 OUTSTANDING FEATURES FOUND ON NO OTHER SAW!

DUAL BALANCE DESIGN — Precision weight distribution for ① Easy Maneuverability . . . one man lifts-up, lines-up, then saws, ② Constant adequate weight over the blade during cutting. Only Clipper has it!

POWERFUL HEAVY DUTY TRANSMISSION — Exclusive Abrasive Coated Drive Wheels transmit power to rear wheels for continuous forward thrust.

POSITIVE BALL BEARING SCREW FEED — Assures accurate cutting depth control. A MUST for abrasive blades.

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(Continued from preceding page)

inch setting. All of the material passed through this crusher and was then conveyed up to a Pioneer 4×10-foot three-deck screen. Here the minus $\frac{1}{2}$ -inch material was rejected to eliminate any dirt brought in from the quarry.

The plus 2-inch material remaining on the top deck of this screen was moved by gravity directly into a Telsmith 4-foot cone crusher with a coarse head. The material between $\frac{1}{2}$ inch and 2 inches bypassed the cone crusher and went directly to the conveyor which carried it to an intermediate stockpile. This stockpile was built over an 8-foot-square recovery tunnel containing a 36-inch belt conveyor which supplied the next stage.

From the surge pile, the rock went first to a Pioneer 4×10-foot three-deck screen where it was again separated into three elements. The portion passing the 1-inch screen went to a long bypass conveyor which carried it directly to the stacker and then to the finished stockpile. The 1-inch to $1\frac{1}{2}$ -inch rock went to one of two Pioneer 40×22 roll crushers.

Plus $1\frac{1}{2}$ -inch material remained on the top deck of the screen and traveled by gravity directly onto the second Telsmith 4-foot cone crusher. This cone was fitted with a fine crusher head.

Material passing the cone crusher and that from the roll crusher moved up a 75-foot-long 30-inch conveyor to a big Pioneer 4×20-foot screen mounted on top of a five-compartment, 80-cubic-yard bin. This bin was used for the two sizes of aggregate for asphaltic concrete and two sizes of chips.

Only two decks of the big screen were used in making base aggregate. The minus 1-inch material went directly to the stacking conveyor while the material retained on the 1-inch screen was shunted to a second Pioneer 40×22 roll crusher. This material was then conveyed back to the main conveyor feeding the big screen, and this created an effective closed circuit on all material over the 1-inch size. This screen was replaced with a $\frac{3}{4}$ -inch screen to produce the type



Finished material, recovered by a 30-inch, 50-foot-long tunnel conveyor, is loaded into Peerless tandem 10-yard bottom-dump trailers pulled by a Mack truck. The conveyor can load the two trailers in 3 minutes.

B or $\frac{3}{4}$ -inch-size base material.

Finished material was carried up the 24-inch belt of a 100-foot-long stacker conveyor that traveled on a circular monorail. The stacker could build a stockpile of 60,000 cubic yards, although there was never an occasion to accumulate that much material at the site.

The arrangement of the units of the secondary stage was interesting. The first 4×10 -foot screen, the cone crusher, and the big screen and bins were set up in a straight line. The two roll crushers were set at 90 degrees to this line on either side of the big screening unit. This made a reasonably compact setup in which all units were readily accessible for maintenance, and which required no changes of direction in the conveyor layouts. From beginning to end, the rock passed straight from one unit to the next.

Electric power

All units of the plant were driven by electric motors of up to 200 horsepower on the big primary crusher. The Telsmith cone crushers each had a 125-hp motor, as did one of the roll crushers. The second roll crusher was driven by two 100-hp motors. Supplying all this power was a full-time job for a pair of Caterpillar 397 diesel-generator sets. One of these was rated at 300 kw and the other at 350 kw, making a total of 650 kw rated output. The big generators, like all other units of the plant, were mounted on rubber-tire trailers to be quickly moved from one job to another.

The fleet of trucks hauling to the job was loaded by a 30-inch conveyor installed in a 70-foot-long recovery tunnel under the stockpile. This speedy loading conveyor could put 20 cubic yards of rock into a pair of the Peerless bottom-dump trailers in three minutes, and could fill a 10-yard dump truck in less than half that time.

All of the material was weighed as it left the plant on a Howe 60-ton truck scale with a 60-foot bed. Estimated quantities of the several types of material for the job included 175,000 tons of base, 55,000 tons of aggregates for bituminous surfacing, and 3,400 tons of cover chips.

THE END

Texas ready-mix concrete, aggregate groups elect

John H. Van Amburgh has been elected president of the Texas Aggregates Association, succeeding Allan F. Cunningham. Van Amburgh is sales manager of Wesco Materials Corp., Dallas. Also elected were L. Ed Lee, vice president, and Robert G. Pyle, secretary-treasurer. Three new directors were elected, and three were re-elected.

Dan R. Parker is the newly elected president of the Texas Ready Mixed Concrete Association, succeeding Floyd J. Childs. Parker is vice president of South End Building Materials Co., Houston. Newly elected officers of the association include Rai B. Kelso, first vice president, and Bill B.

Dement, second vice president. Two new directors were chosen, and four re-elected.

Ray L. Cain was re-elected to serve as executive secretary by both groups.

Oliver appoints three

The Oliver Corp., Chicago, Ill., has appointed in their Industrial Division: J. M. Tucker, special consultant in the development of policies for the industrial equipment market; Edward Kruse, central regional sales manager, with headquarters in Cleveland, Ohio; and R. A. Dole, eastern regional sales manager, in charge of the firm's industrial division sales from the Canadian provinces south to Virginia.

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This 25 ton Top Value Trailer is well named. Never during our many years of specialized experience has there been available a trailer of comparable value —

ROGERS Top Value Trailers

25 TON CAPACITY to haul a large percentage of loads

DESIGNED FOR LIGHTNESS without sacrifice of strength. (Only 9,000 pounds)

ALLOY STEEL MAIN BEAMS from "tail" to and including gooseneck

EMBODIES ALL BASIC FEATURES

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BEAVER TAIL END for easier loading and lengthened load capacity

LONG FLAT GOOSENECK carries bulldozer blades, dippers, etc.

AMPLE SPACE IN GOOSENECK to carry jacks, blocking, etc.

TOP VALUE in low first cost —

TOP VALUE in embodiment of basic requirements —

TOP VALUE in wide adaptability to hauling needs —

TOP VALUE in lightness compared with load capacity (only 9,000 pounds)

TOP VALUE in ease of hauling — and maneuverability —

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Advanced Designing

based upon pioneering experience and volume production enable us to offer this Top Value Trailer at a most attractive price.

At least one unit should be added promptly to every heavy hauling fleet. Mail the coupon for complete information including price.

GET THE DESCRIPTIVE LITERATURE PROMPTLY

Fill in, detach and mail this coupon to the Rogers Distributor in your vicinity or to us.

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Caterpillar DW20 scrapers start down the steep haul road to the bottom of the 480-foot cut for U. S. 101 in California's Humboldt Redwoods State Park.

Scrapers are winched up 62 per cent grade to make big highway cut

"I LIKE THEIR MECHANICAL DEPENDABILITY...LIKE THEIR LONG LIFE...LIKE CATERPILLAR DEALER SERVICE..."



B. K. SOBY, vice president and secretary of the John Dieseth Co., Fergus Falls, Minn., amplifies the above by saying of his DW20s and other Caterpillar-built equipment: "They're good all-around machines with high production capacity. They're well-engineered down-to-earth machines that can be depended on to do a good economical job."

MR. SOBY has ample opportunity to prove out his preference for CAT earthmoving equipment on this highway improvement job—U. S. Highway 75 between Madison and Bellington, Minn. Working in hog-wallow type gumbo, two Cat DW20s with matching No. 456 Scrapers are pushloaded by a D9 equipped with No. 9S Bulldozer. The No. 456s are carrying 22 cu. yd. per load on hauls from $\frac{1}{4}$ to $\frac{1}{2}$ mi. The job involves moving 623,000 cu. yd.—50,000 yd. borrow and the balance general excavation. A Cat No. 12 Motor Grader maintains scraper haul roads.

Now a new DW20 (Series F) Tractor is available. It features a SUPER-TURBO Engine that provides 320 HP (maximum output) . . . 28% torque rise . . . top speed of 35.8 MPH!

The SUPER-TURBO incorporates a new concept in diesel engine turbocharging—an air induction system unique in earthmoving machines . . .

and another Caterpillar first. This system allows use of more of the Turbocharger's potential than was possible before. Results: twice as much torque rise, higher horsepower, better acceleration and gradeability. But more important, faster cycles, greater production and more profit—for you.

For lowest *total cost* earthmoving machines that give profit production with a minimum of down time—for nearby parts and service you can count on—contact your Caterpillar Dealer. He knows *your* problems, and will show you how Caterpillar equipment can meet them best.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

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SUPER-TURBO ENGINE
—First in the Industry
—First in Performance

For more facts, use Request Card at page 18 and circle No. 209

Getting rubber-tire scrapers to the top of a 525-foot-long 62 per cent grade, to start the highest roadway cut ever made on a California highway, was the problem faced by Guy F. Atkinson Co., South San Francisco, on the Redwood Freeway project. The contractor solved the problem by winching the rigs straight up the steep slope.

This unusual operation took place on Atkinson's \$6.8 million contract for the construction of a 4.4-mile section of the freeway, U. S. 101, between Weott and Dyerville in the Humboldt Redwoods State Park in northern California. In building the new highway through the groves of huge virgin redwoods, every effort was made to save as many of the big trees as possible.

On the south approach to the new bridge, being built over the South Fork of the Eel River, it was necessary to make the extremely high sidehill cut. Slope stakes at the top of the cut showed a maximum cut of 480 feet to finished grade, which was still well above the level of the river. This one cut provided approximately half of the 2,800,000 cubic yards of excavation in the project. The material went into the bridge approach embankments on both sides of the river. Hauls ranged up to 7,000 feet and averaged 3,500 feet.

In order to preserve the redwood groves, specifications required the contractor to confine his operations to the slope lines. This eliminated the possibility of building an access road by a roundabout way to the top of the cut, and created the problem of getting the scrapers up the very steep slope.

Done in one season

The job was further complicated by the requirement that this big cut be completed in one short working season. The old road followed the toe of the steep ridge on which the big cut was made. It was obvious that rocks and other material rolling down the hill would obliterate this road during the construction period.

Since there were no roads in this mountainous region which could serve as detour routes, a $\frac{1}{2}$ -mile detour was paved around the construction area. This detour dropped down into the river bed where it was expected to be safe from flood waters during the dry weather. But an unseasonable summer rain sent a flash flood down the valley, washing out a portion of the detour.

The detour had to be removed before the fall rains started so that

CONTRACTORS AND ENGINEERS

Rigs move 1,400,000 yards of material for 480-foot-high cut; excavation totals 2,800,000 yards; daily rate is 15,000 yards

traffic could be rerouted on an alignment above flood levels. This requirement made it necessary that the big cut be completed and traffic diverted onto a part of the new alignment by October 15, 1957.

After the big cut area had been cleared and grubbed, five Caterpillar D9 tractor-dozer worked their way to the top of the grade and began pioneering the cut, pushing the material down the grade ahead of them. From this time on, rolling rocks were a continuous hazard. No workmen were permitted on the slopes below the grading operations where there was danger from the rolling pieces.

Use logging winches

Completion of the cut on schedule required the moving of about 15,000 yards per day, and Atkinson planned the operation to handle that yardage right from the beginning.

Working up one end of the steep hillside, tractor-dozer graded a ramp wide enough to accommodate four lanes of Caterpillar DW20 scrapers side by side. This ramp was 525 feet long and had a grade of 62 per cent.

Four powerful 400-hp diesel-driven logging winches, known in the lumber industry as yarders, were set up to serve the four lanes. One of these was a Willamette yarder powered by a Cummins V-12 engine. One was a Washington yarder with twin General Motors 6-71 engines. The other two were rebuilt machines powered by twin Cummins engines.

Each yarder had a main drum from which the 1 1/4-inch tow cable was operated and a high-speed haul-back drum from which a 3/4-inch line was reeved through blocks to pull the main cable hook back to the bottom of the ramp. Each yarder was mounted on a pair of heavy timber skids so that the big machines could pull themselves up the steep ramp and into position at the top.

At the beginning of the operation, a bench was cut into the hillside so that the yarders could be stationed within sight of the hookup area. Later, three of the four machines were moved to a level area at the top of the ramp. Only three of the rigs were operated at a time, the fourth serving as a standby.

Automatic coupling

An ingenious hooking device enabled the scrapers to engage the hook at the bottom and disengage at the top without manual assistance.

The heavy towing hooks, formed from 2-inch thick plate stock, were

(Continued on next page)



One of the Cat DW20's nears the bottom of the steep grade, passing one of the big redwood trees that is being preserved along the route. Scrapers had to handle about 15,000 yards per day to meet the schedule for the job.



Near the top of the deep cut, scrapers pick up their loads fast. The Ateco rippers on the Cat D8 tractor-dozers were used to rip some of the rock encountered in the cut. Far below, the Eel River winds between stands of giant redwoods.

2 PAYLOADS ... 1 HAULING COST

Now you can boost earning power of your present tractor-driver fleet with Clement Dual Trailers.

They are designed to pull behind your present dump units or in train. Either way, you add two payloads of 8 to 10 yards on every haul with one tractor, one driver . . .

Highly maneuverable, Clement Dual Trailers tow easily and can be turned in as little as 31 feet. Tapered hoppers and air operated doors controlled from the cab let the driver eject the load cleanly as he moves through the

dump area. Big air brakes and ICC lighting provide safety for fast highway hauls.

Double your payloads . . . get the Dual Train story from your nearest Clement dealer or write direct today.

Designed by Clement, inventor of the original cable-lift dump trailer. Field proved on hardest quarry and construction projects.

Over 1,000,000 payload miles of experience.

Engineered for maximum load limits and peak performance, all Clement-designed dump trailers hold payload from wind whipping . . . for faster round trips.

Limited number of Clement distributorships open to qualified heavy equipment dealers.

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For more facts, use Request Card at page 18 and circle No. 210



A crew with a McCulloch 5-hp chain saw starts clearing the giant redwoods.



The huge trees dwarf the men, who must work quickly and carefully.

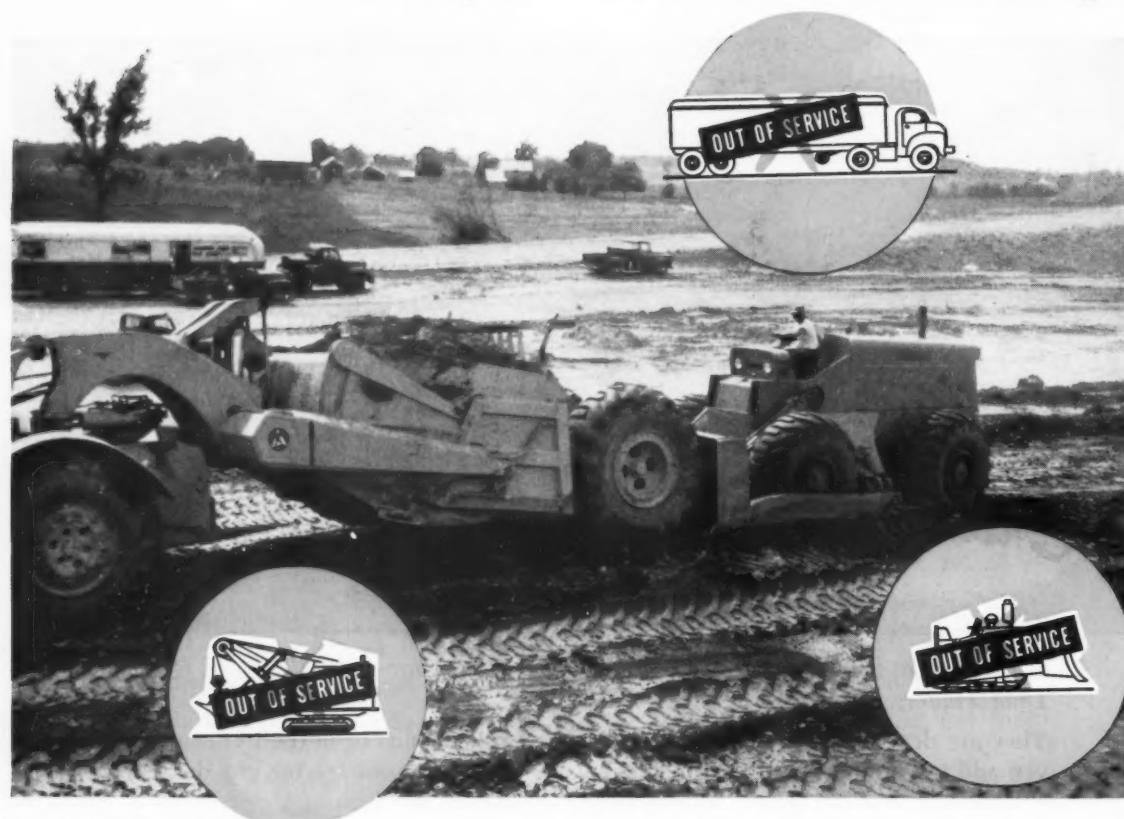


"Timber!", and a workman quickly removes his saw and heads for safety.



With a crash, the tree falls into the space that has been marked out for it.

Stays ON the Job - Stays OUT of the Shop



Strong KEYS (a) on the bearings—and corresponding KEYWAYS (b) in the flanges—accurately machined from solid metal, transmit the torque in this largest capacity MECHANICS Roller Bearing UNIVERSAL JOINTS. Two cap screws (c) hold each bearing securely in place—their only function—and are locked in position. This KEY method of driving has the highest safety factor, transmits the most torque with the

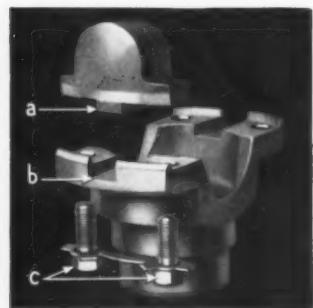
least weight, and avoids costly breakdowns resulting from driving through bolts or screws that wear loose.

Let our engineers show you how this exclusive MECHANICS Roller Bearing UNIVERSAL JOINTS advantage will help improve the operation of your product.

MECHANICS UNIVERSAL JOINT DIVISION

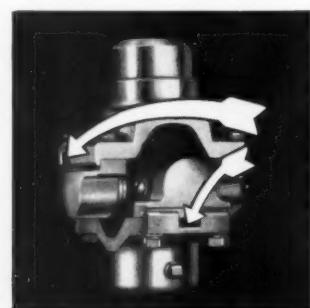
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(Continued from preceding page)

welded to 3 x 5-foot steel sleds so that the hooks always remained upright. A double loop of cable was attached to the tow hooks of the scrapers, and the hooks were welded shut. The cable loop hung about four inches above the ground where it could readily engage the tow hook.

To engage the tow hook, the scraper operator pulled over the hook and then eased back until his cable loop had engaged the hook. After a visual check to see that the coupling was satisfactory, a signal was passed to the yarder operator and the upward trip began. The DW20's used their own power in second-over gear to assist the hoists.

At the top of the ramp where the grade flattened, the scrapers were able to proceed under their own power. As they did so, the towing hook dropped to the ground and was automatically unhooked. The scrapers did not even have to hesitate at the top.

The upward trip required about a minute and a half on the average. It took about half a minute for the high-speed haul-back to return the hook to the bottom. Allowing a minute for hookup and lost time, this meant that each hoist raised one of the scrapers every three minutes. With three yarders and 18 DW20 scrapers in operation, a loaded scraper came off the cut every minute.

Since there was a break in the grade at the top of the ramp, rollers had to be installed to keep the cables from digging into the ground. Very satisfactory rollers were fabricated on the job from used track rollers that had the center flange removed.

Scrapers load downhill

Push-loaded by Caterpillar D9 tractors, the scrapers were quickly loaded. At the first they had about a 40 per cent downgrade on which they filled out their loads after starting with a push at the top. As they worked on down, the return road was cut down to a 15 per cent grade.

When the cut had been worked down so that the 15 per cent road reached the top, the scrapers reversed their cycle traveling up this road. At



A Portland PC-100 crane picks up the huge redwood logs and loads them onto a Mack truck for the haul to a mill.



While the trees are being sawed into logs and loaded out, a Cat D7 with Fleco rake pushes brush into a pile for burning.

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this point the use of the yarders was discontinued. Approximately half a million cubic yards of material had been handled with help from the yarders, with some 350,000 yards coming from elevations above the level at which the yarders were set. This was considered a very satisfactory operation, and it proved the key to the entire project.

When the scraper routing was reversed, the scrapers began loading and traveling down the 62 per cent grade. This was no problem to these machines; operators simply dragged the scrapers to provide braking. At times when there was congestion at the bottom of the slope, several scrapers came to complete stops on the steep slopes. Then, from below, the scrapers seemed like huge insects clinging to a wall.

Cut is partly rock

The big cut was made with a slope of 1 to 1 with 20-foot-wide benches at every 60 feet of elevation. The benches have reverse slopes leading toward prepared drains at the center and ends of the cut.

When rock was encountered in the cut, most of it was ripped by the D8 and D9 tractors equipped with Ateco and Caterpillar rippers. A small amount had to be drilled and shot. Once it was ripped or shot, the rock was loaded by the scrapers and incorporated into the fills.

To keep pace with the placing of the fill material, five tractor-dozers pulling Le Tourneau-Westinghouse and Southwest sheepsfoot rollers were kept busy on the big fill. One of these was a D9 pulling a double set of sheepsfoot rollers. The others were International TD-24 and Caterpillar D8 tractors, each with a single set of rollers. Two Cat No. 12 motor graders kept the haul roads in shape.

When the big cut was completed and the detour through the river removed in advance of the winter rains, traffic was routed over the old highway. Construction of the base and paving will be done this season, and the entire job is scheduled for completion in October.

Job has other problems

Although the big cut was the major
(Continued on page 19)

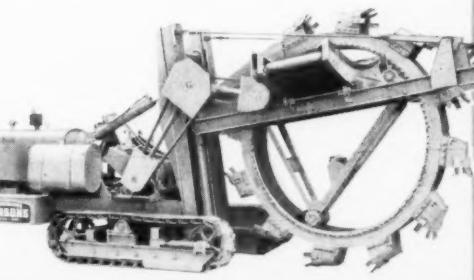


Small wheel-type Trenchliner® added to Parsons® line

With NEW 130 you get:

- cutting widths — 12" to 24"
- maximum digging depth 5'9"
- shiftable, reversible conveyor; optional hydraulic drive
- 30 digging speeds from 12" to 18 lineal feet per minute
- heavy-duty cast-steel buckets
- double-point "Tap-In" teeth — self sharpening, reversible
- quick-change gumbo buckets
- retractable bucket-cleaner
- hydraulic wheel-hoist on power-tilt mast
- 12" crawlers, integral pad and rail-type. Optional: 16" grouser, 12" flat shoes
- 52 h.p. gas or 57 h.p. diesel

Also included in the big Parsons line are all sizes of ladder-type machines, on crawlers or rubber tires. For any size trench — 8 inches to 6 feet wide — depths to 19 feet — there's a Trenchliner to fit all your requirements.



PARSONS® TRENCHLINER®

A division of
Koehring Company

Mall to PARSONS Company, Newton, Iowa
Please send more information on new
130 Trenchliner

NAME _____

TITLE _____

COMPANY _____

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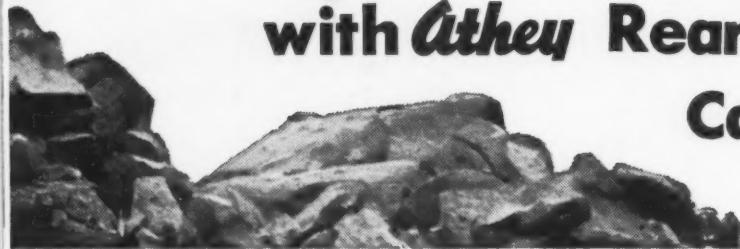
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For more facts, use Request Card at page 18 and circle No. 212



30-Ton Rocks moved with *Athey* Rear Dumps in California



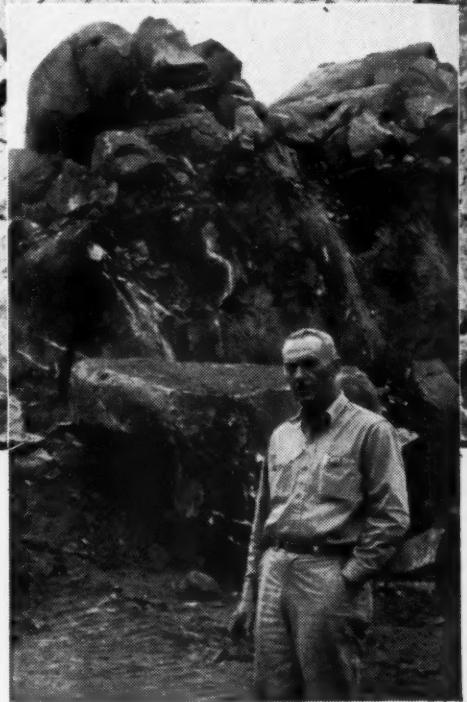
An 8-lane extension of U. S. Highway #80, the main route between San Diego and El Centro, California, is being constructed by contractors, E. C. Young and Young & Arrieta.

A total of 1½ million yards of rock and earth is to be moved. The section will be 2 miles long in La Mesa, a thriving San Diego suburb.

Cat-Athey DW21-PR21 Rear Dump Trailer Units were selected for the job because they are built for heavy rock work. Their sturdy, rugged design and highest quality construction solved the rock problem and their easy loading and fast dumping are helping the contractors meet a tight production schedule.

You can keep your job moving on schedule, too, with an Athey-Cat Tractor-Trailer team perfectly suited to your job. Your Athey-Caterpillar Dealer can help you select the best rig for your particular needs. Or, write Athey Products Corporation, 5631 West 65th Street, Chicago 38, Illinois.

The only complete Tractor-Trailer Line... by the leaders



Contractor E. C. Young. The huge boulders in the background are being moved with Cat-Athey Rear Dumps.

Agile DW21s-PR21s are quickly moved into place for loading.



Athey

For more facts, use Request Card at page 18 and circle No. 213



Two Cat D9 tractor-dozers with Ateco rippers, one of them pushing a DW20, work near a completed section of the cut. Other scrapers operate on benches along the sloping bank.



Rock dug from a hilltop quarry as riprap for the Eel River bridge-approach fill is loaded into a truck by an Allis-Chalmers HD-15 tractor with a 3-yard shop-made bucket. The bucket is built in the shape of a Tracto-Shovel bucket, and is mounted on the Tracto-Shovel assembly. It is made from pipe and other steel sections to form an open grating so that the operator can shake out dirt and small rock before dumping to the truck.

(Continued from page 17)

problem on this project and the real key to the planning of the job, there were other difficult phases of work. One of these was the clearing and grubbing, which was sublet to H. J. Coleman, Inc., Ukiah, Calif. The clearing and grubbing item of the contract was bid at \$444,000, plus the timber, which was estimated to be in excess of 3 million board-feet.

Loggers felled the big redwood trees with McCulloch 5-hp chain saws. The merchantable timber, loaded onto trucks by a Portland PC-100 crane with a heel boom, was hauled to nearby mills.

Crews, using a Caterpillar D4 tractor-dozer and a D7 with a Fleco root rake, gathered the brush and branches and stacked them on the right-of-way for burning. Many of the larger stumps had to be dynamited before they could be removed. Since the redwood does not burn readily, most of the stumps and some larger pieces of wood were loaded into trucks by a P&H Mighty Mite mobile crane and hauled to disposal areas. The grubbing crews also used a D8 tractor-dozer for trail building and heavy stumping.

Strip deep fills

Stripping the unsuitable material from the bottoms of some of the fill areas was a difficult operation. Again, the real difficulty stemmed from the contractor being confined to the slope lines. Deep, steep-sided ravines crossed the new alignment and had to be filled in building the new grade. Since the bottoms of these ravines were always soft, wet, and unstable, they had to be excavated, drained, and stabilized before the fills could be built.

Caterpillar D8 tractors with Caterpillar 80 or 463 scrapers worked their way down into the ravines, where they loaded the unsuitable material with the aid of a D8 pusher. In some cases, the trails up out of these holes were so steep that the two D8's were unable to bring the loaded scraper to the top. In these cases, a winch line from an International TD-24 tractor was used to help bring the load out of a ravine.

(Continued on next page)

SYMONS FORMS and forming system

assure you efficiency and savings in cost and labor

Symons different type forms are not confined to a single type of application. They can be used on most any type construction job and on any height wall. Factory-made from the finest of materials. Frames of the Steel-Ply and Mag-Ply Forms have an indefinite life.

Wood-Ply

Symons manufactures three types of wood forms. *High Strength Panels* . . . recommended for pouring concrete walls with pressures up to 1,200 pounds per square foot; *"Champ"* Panels . . . for both commercial and residential work; *Light Construction Panels* . . . for light or residential construction, where heavy pressure is not a factor.



Symons High Strength Panel has steel cross members on 12" centers. Its weight averages just 5 pounds per square foot.

Wide Panel

Symons Wide Panel Forms have steel struts and 2x4 cross members to strengthen the panel and minimize deflection when subjected to heavy pressure. These forms are used in gang forming. They have tie holes in the steel struts which allow the insertion and removal of special ties when the panels are ganged. Built in 6' and 8' lengths and 30", 36", 42" and 48" widths.



Pouring a 2,400 foot retaining wall with Symons Wide Panel Forms made up in gang sections of 10'x24' and 15'x24'.

Steel-Ply

Designed for durability and long-life. The initial cost of these forms is higher than Symons Wood-Ply Forms. However, this first cost is more than offset by the many reuses possible with these panels. They are easily erected and stripped with the 3 basic pieces of the Symons System—connecting bolt, panel tie and wedge.



37,000 square feet of Steel-Ply Forms used on the Air Force Academy, Colorado Springs, Colorado.

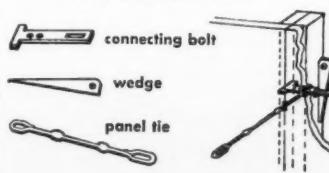
Mag-Ply

Symons Mag-Ply Forms are the lightest forms available . . . weight averages about 3½ pounds per square foot. The frames of durable, rust-proof magnesium completely encase the plywood, will last indefinitely and will not swell or shrink. 2½" thickness of frames means more panels per truck load, less space for stacking and storage.



Light and efficient Mag-Ply Forms are readily adaptable for circular, battered and cut-up walls.

Only 3 Hardware Pieces



Symons Forms available on a Rental Basis—Rents can apply to purchase price.



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The scrapers building the fill for the Eel River bridge approach work in the shadow of redwood trees that lie right on the toe line of the slope. All material for this fill came from the big cut.



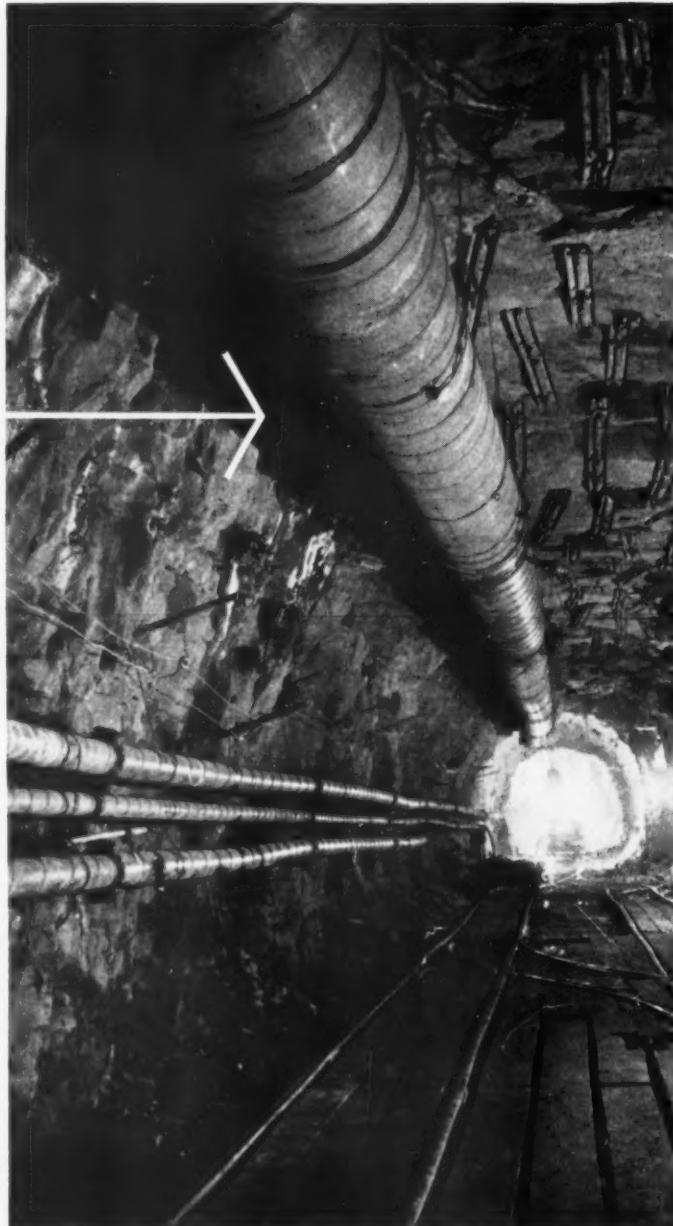
Another spread of scrapers works on another part of the right-of-way that cuts through redwoods. The Euclids and one DW20 are scraping up loads; another DW-20 is being push-loaded.

UNDERGROUND AIR EXPRESS

Speed is a *must* for tunnel construction—in moving fresh air where needed—in getting rid of smoke, dust and fumes—in pumping water—and in supplying air for pneumatic tools.

There's no better way to supply these vital needs than through lines of NAYLOR Spiralweld pipe. It's easy to handle and install because it's light in weight. It's easy to extend as work progresses, particularly with the one-piece NAYLOR Wedge-lock coupling to speed connections. Lines hug the wall and can be connected with only one side of the pipe in the open.

For all these services, you'll like the extra strength and safety built into NAYLOR pipe through the exclusive spiral-lockseam structure. For complete details, write for Bulletin No. 507.



For more facts, use Request Card at page 18 and circle No. 215

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(Continued from preceding page)

When the unsuitable material had been removed, filter gravel was placed in the bottom of the trench and 8-inch perforated drains were laid to carry the water. More of the filter material was placed above the drains before the normal fill operation was started.

In addition to the machines on the big cut and fill operation, there were two other grading spreads working in other areas along the job. One of these included four Euclid 6-wheel scrapers and five Cat DW20 scrapers, together with an Allis-Chalmers HD-21 push-tractor, two D8 tractor-dozers, a D8 pulling a sheepsfoot roller, and three International TD-24 tractors with sheepsfoot rollers.

The second spread contained seven D8 tractors pulling Caterpillar 80 and 463 scrapers, four D8 tractors with dozers or sheepsfoot rollers, and an International TD-24 tractor with a sheepsfoot roller.

Job includes bridges

Included in the contract is the construction of four bridges. The largest, the Eel River bridge, is a 5-span structure with a total length of 875 feet. It has a main span carried on plate girders 275 feet long. These unusually long plate girders must be trucked in sections from the rail head to the site for fabrication. Delivery and erection of the steel are scheduled for early this summer.

The steel fabrication and erection were sublet to Judson Pacific Murphy Co., Emeryville, Calif. Raymond Concrete Pile Co. drove the piling for the pier footings.

The contractor's forces built three of the piers with the slip-form method, using B. M. Heede hydraulic slip-form jacks. These three piers were built to heights of 45, 47, and 50 feet above water. Although the piers were very long, because of the skew of the bridge, the slip forms held the stems to within $\frac{1}{4}$ inch of tolerance from the established lines.

"Rock factory"

An important job in connection with bridge construction was that of turning out more than 30,000 tons of riprap—in an area where prac-

tically all rock deposits were too soft for this use—to protect the bridge approach fill.

For nearly three quarters of a mile, these fills are exposed to the raging flood waters of the stream. The disastrous 1955 floods in this area of northern California clearly demonstrated the destructive force this river can exert, and emphasized the need for adequate protection for the fills.

The contract called for a minimum of 33,000 tons of riprap in addition to 5,000 cubic yards of concrete slope paving. The riprap item was minimized because of the lack of suitable rock in the area and the high cost of transporting rock long distances to the site. But when Atkinson's "rock factory" proved it could turn out a large quantity of suitable rock, the riprap item was increased and some of the slope paving eliminated.

As in most of the Pacific Coast Range, the rock was generally soft and badly weathered, but Atkinson discovered that there were hard, boulderlike pieces dispersed throughout some of the deposits near the job. The problem was to separate pieces from the surrounding dirt and soft rock, and to do this job economically.

Two Cat D8 tractor-dozers on a ridge near the north end of the job gouged into a hillside that contained a little less than half of the suitable rock needed. The soft rock broke down under the tractors, and the hard pieces were combed out and brought to the top by the dozers. These pieces were pushed around until most of the dirt and poor rock broke away from them; then they were pushed into piles to await loading. Some of the pieces were large enough to require blasting. In other cases, the deposits were drilled and blasted in advance to speed the work of the dozers.

An Allis-Chalmers HD-15 Tracto-Shovel, with a special shop-made bucket having a 3-yard capacity, loaded the rock from the stockpile to the trucks. The bucket was built in the shape of the standard Tracto-Shovel bucket, but was formed of an open grating of pipe and other steel sections. This permitted the operator to pick up good rocks and to sift the remaining dirt and soft material through the bucket as he loaded the trucks. A D8 tractor-dozer kept pushing the rocks up to the loader to speed the operation.

The rented trucks hauled the rock to the job site and dumped it on the river bank. Rocks were placed individually or a few at a time, by a crane with an Owen Model 90 rock grapple.

Paving this summer

When the highway is finished late this year, it will provide two 24-foot-wide roadways separated by a 4-foot-wide paved and painted median. There will be 7-foot-wide paved shoulders on both sides, with paved dikes along the fills to control the flow of rainwater. Fill slopes are 1½ to 1 and cut slopes range from 1 to 2.

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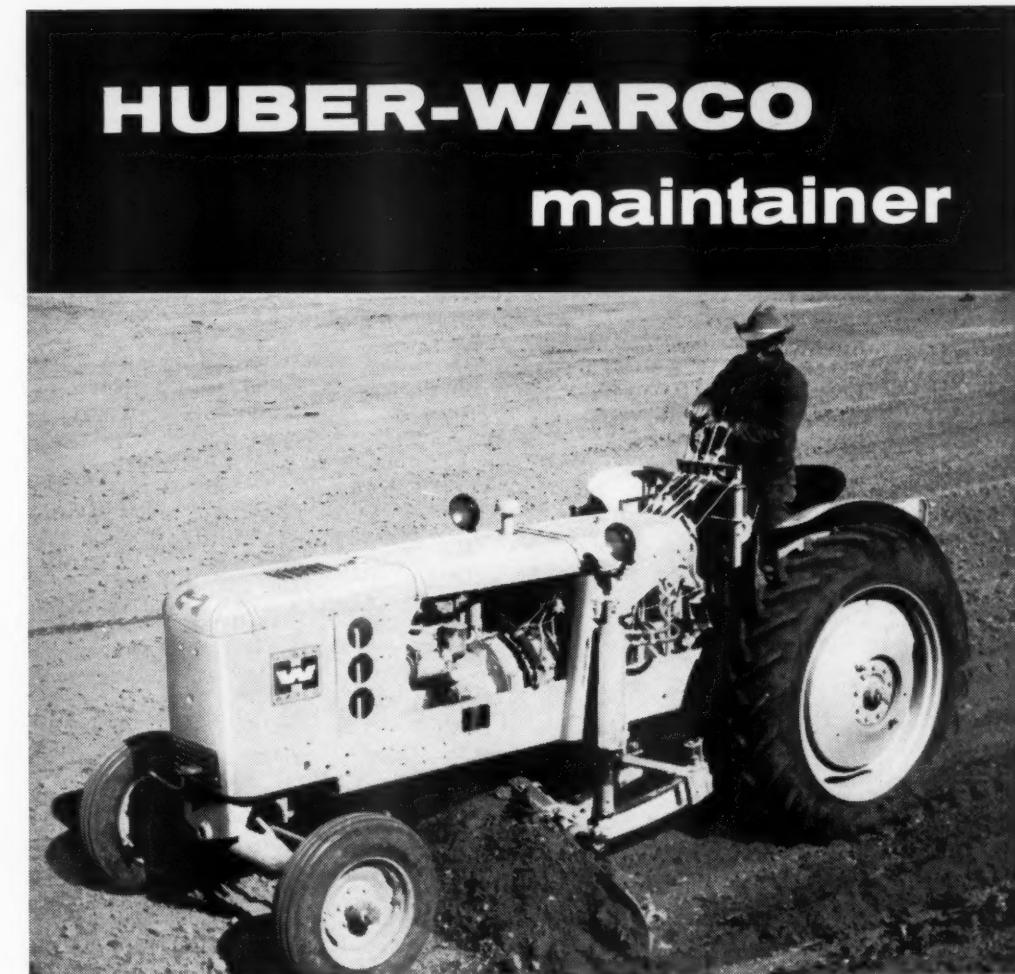
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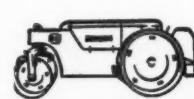
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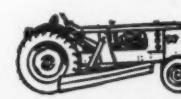


a profit-maker on any job

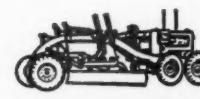
The Huber-Warco M-52 MAINTAINER, with torque converter, is an all-purpose, year 'round performer, capable of outperforming many machines that are larger, heavier, more costly, slower, more expensive to operate, and more limited in use. With hydraulically controlled attachments, the M-52 MAINTAINER will perform service as a lift-loader, bulldozer, highway mower, broom, snow plow, side dozer, berm leveler and patch roller. See your Huber-Warco distributor for complete details.



3-WHEEL ROLLERS



MAINTAINER



MOTOR GRADERS



TANDEM ROLLERS

Products of HUBER-WARCO COMPANY, Marion, Ohio, U. S. A.

HUBER-WARCO COMPANY, Marion, Ohio, U.S.A.

Send specifications on the Huber-Warco
M-52 Maintainer.

Send specifications on: Motor Graders
 Tandem Rollers 3-Wheel Rollers

Name _____

Title _____

Company _____

Address _____

City _____ Zone _____ State _____

5-CE

For more facts, use coupon, or Request Card at page 18 and circle No. 216



(Continued from preceding page)

1 to as low as 2 to 1.

Topping the grading section is a foot of granular filter material followed by 6 inches of gravel subbase. On this will be placed 8 inches of cement-treated base and 3 inches of bituminous-concrete paving placed in two courses. This heavy type of paving is made necessary by the poor bearing quality of the subsoils and the very heavy logging truck traffic.

Personnel

Project manager Gordon G. Bawden is supervising the project for Guy F. Atkinson Co. On Bawden's staff are excavation superintendent L. B. Snider, carpenter superintendent Charles Skelton, labor superintendent

Fred Hogodone, master mechanic Gordon Melton, engineer Phil Smith, and office manager Ed Hunt. The clearing subcontract was supervised by Bob Curless, superintendent for M. J. Coleman, Inc.

This project is under the supervision of District I of the California Division of Highways with headquarters at Eureka. The district engineer is Sam Helwer. The resident engineer on the job is H. W. Benedict, while Alton Kay serves as bridge representative. In the field office, F. M. Dorris is office assistant, with Robert Winkelhaus serving as field assistant. Milton Harris is construction engineer for the Division of Highways, and G. T. McCoy is State Highway Engineer in Sacramento.

THE END



-ALI-



EIMCO 105 DOZER — Maneuverability + Speed + enough power to move any load = PROFIT

View of one section of assembly line.

EIMCO 105 EXCAVATOR (Overhead) — Maximum Crowd force for high capacity excavating + high production loading efficiency = PROFIT



EIMCO 105 FRONT END LOADER — Rugged construction + Tremendous break-out force + maximum stability for high capacity loads (shown above) = PROFIT

HIGH PRODUCTION UNITS

Here is a view you would see any day at Eimco — Dozers, Excavators and Front End Loaders coming down the assembly conveyor line in the big Eimco shops.

Filling repeat orders from users who have learned from experience that Eimco built machines are the high production units designed for really profitable operations.

If costs are eating your profit margins why be hindered with the habit of buying old style tractors.

In the Eimcos you get the quality you pay for as Eimco customers have been doing for almost 75 years.

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B-323

Descriptions of the latest models of equipment start on page 107.

CONTRACTORS AND ENGINEERS

NSPE award for 1958 to go to Dougherty

The 1958 award of the National Society of Professional Engineers will be presented next month to Nathan W. Dougherty, dean emeritus of engineering at the University of Tennessee.

The presentation will be made at the June 11 to 14 annual meeting of the NSPE in St. Louis, Mo. Dean Dougherty is being given the award in recognition of "his outstanding leadership in his profession as evidenced by his devotion to the advancement of engineering education, his sympathetic encouragement of students of engineering, and his zealous promotion of the ideals and principles of his profession. . . ."

A graduate of the University of Tennessee, class of 1909, Dean Dougherty became department head in civil engineering in 1916. From 1940 to 1956, he served as dean of the College of Engineering. He is a past president of the American Society for Engineering Education and a past vice president and national director of the National Society of Professional Engineers.

National Cylinder Gas changes name to Chemetron

The National Cylinder Gas Co., Chicago, Ill., has changed its company name to Chemetron Corp., since the old name did not reflect the three major industries the firm serves—chemicals, metals, and electronics.

The firm produces machines for welding and cutting; welding fittings and flanges for piping systems; custom forgings; and oil-well drilling equipment. It also provides engineering design and construction of complete process plants for the chemical, petroleum, and various other industries.

Pacific Gas appoints chief civil engineer

J. Dean Worthington has been promoted to chief civil engineer of the Pacific Gas & Electric Co., San Francisco, Calif. He succeeds Carl W. Appleford, who retired after 38 years of service with the company.

As head of the civil engineering department, Worthington will be responsible for the structural and hydraulic design of hydroelectric, steam-electric, and other large construction projects in PG&E's expansion program. He will also be in charge of engineering economic studies and planning for future projects.

Utah Construction news

Albert L. Reeves has been named vice president of the Utah Construction Co., Salt Lake City, Utah. His duties will include general administration and contract negotiation for the international engineering and contracting firm.

Reeves is also a partner in the Washington, D. C., law firm of Cummings, Sellers, Reeves, Conner & Kendall.

MAY, 1958

HUBER-WARCO tandem rollers



H-W tandem on Connecticut Turnpike

Two Huber-Warco TANDEM ROLLERS have been used by D'Addario Construction Company of Bridgeport, Connecticut, to put the finishing touch to 20,800 tons of bituminous concrete in the Fairfield-Bridgeport area of the Connecticut Turnpike. These two rollers handled the paving of bridge ramps, approaches, dividers and shoulders. D'Addario has also used the two Huber-Warco TANDEMS in many other paving jobs in the Bridgeport area, and like the dependable performance of the units. They also own a Huber-Warco variable weight 3-WHEEL ROLLER that has recently been used for seal coating. A Huber-Warco TANDEM ROLLER can play an important part in your "profit-paving" operation. See your Huber-Warco distributor for complete details.



MOTOR GRADERS



TANDEM ROLLERS



3-WHEEL ROLLERS



MAINTAINER

Products of HUBER-WARCO COMPANY, Marion, Ohio, U. S. A.

HUBER-WARCO COMPANY, Marion, Ohio, U.S.A.

Send specifications on Huber-Warco tandem rollers.

Send specifications on: Maintainer
 Motor Graders 3-Wheel Rollers

Name _____

Title _____

Company _____

Address _____

City S-CE _____ Zone _____ State _____

For more facts, use coupon, or Request Card at page 18 and circle No. 218



Names in the news

Ted A. Anderson, new vice president of McNeil Construction Co., Los Angeles.



McNeil Construction names vice president

Ted A. Anderson has been appointed vice president of the McNeil Construction Co., Los Angeles, Calif., contractors. The former assistant to the general manager will now aid the company in the building of commer-

cial and industrial plants and facilities.

A member of the firm since 1941, Anderson has held such posts as director of purchases, office manager, public relations manager, and project manager.

Research, publicity firm serves producers, groups in construction industry

A new research and publicity firm has been created to serve exclusively national associations and individual manufacturers in the highway construction industry. Highway Information Services, Inc., 824 Colorado Bldg., Washington 5, D. C., has been organized by Duane L. Cronk, Washington public relations consultant and construction industry writer.

The new organization offers an on-the-job photo-reporting service for manufacturers and materials pro-

Duane L. Cronk, of the new Highway Information Services, Inc., Washington, D. C.



ducers whose products are sold to road builders or highway departments. A staff of photographer-writers will obtain stories and photos on jobs east of the Mississippi only.

Other services include public relations, convention publicity, product promotion for associations, and the translation of industry statistics, coming out of Washington, into market data for individual manufacturers.

Cronk handled the editorial publicity program for the American Road Builders' Association's \$9 million Road Show, which was held last year in Chicago. For a number of years he has been a regular contributor to national construction magazines.

Corps of Engineers news

Brig. Gen. William Whipple has been named division engineer for the U. S. Army Corps of Engineers' Southwestern Division at Dallas, Texas. He succeeds Brig. Gen. Lyle E. Seeman, who has been assigned to the office of the Deputy Chief of Staff for Logistics in Washington, D. C.

Col. Arthur M. Jacoby has been transferred to Little Rock, Ark., as district engineer there. He succeeds the retired Col. Staunton Brown who is now associated with IBEC Housing Corp., New York City.

Col. Robert W. Love has been named Mobile District Engineer, U. S. Army Corps of Engineers, and will assume his duties in July. He succeeds Col. Harold E. Bisbort, who is being transferred from the Mobile, Ala., post to an overseas assignment.

Col. Paul H. Symbol, now in the office of the Deputy Chief of Staff for Logistics, Washington, D. C., will become District Engineer for the Corps of Engineers in Walla Walla, Wash., in July. He will succeed Col. Myron E. Page, Jr., who is being assigned to the office of the Chief of Engineers in Washington, D. C.

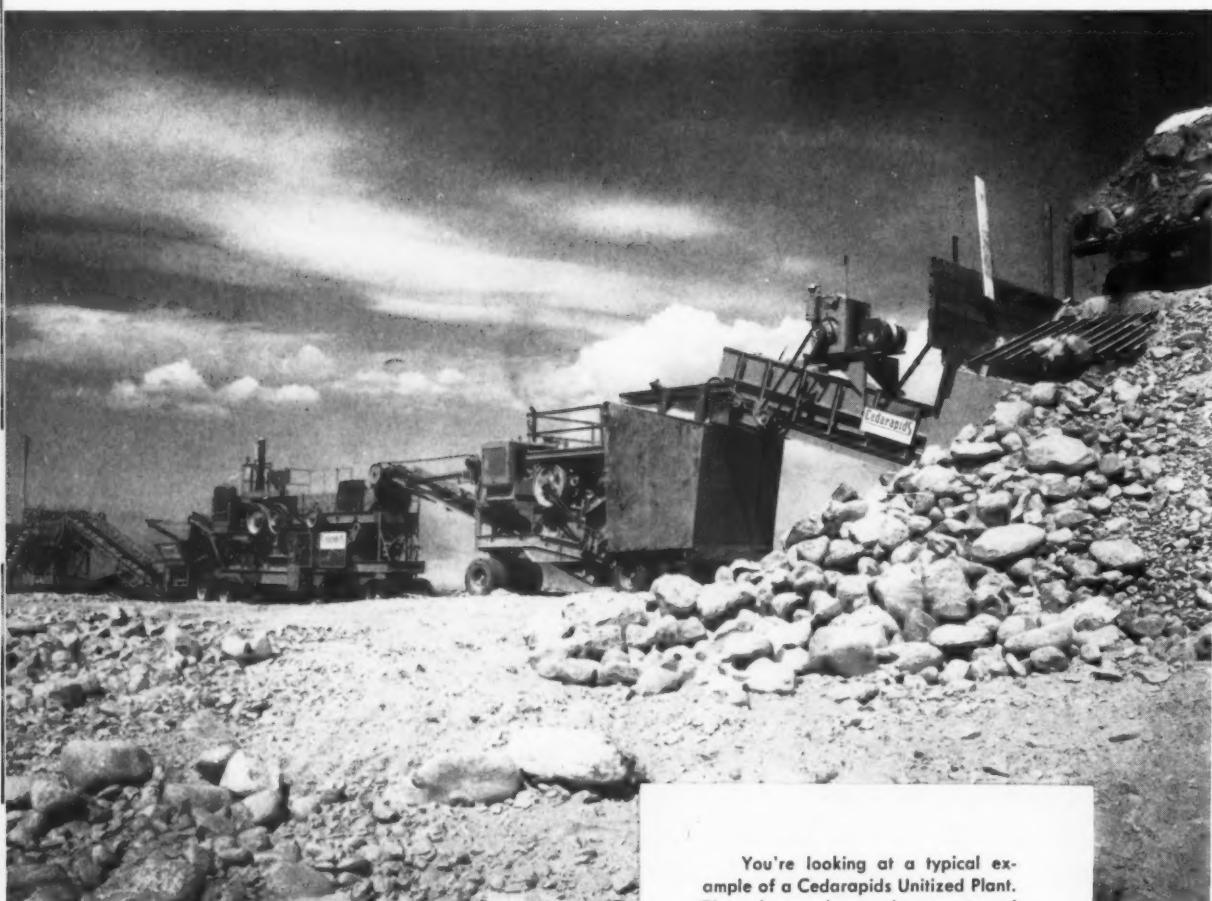
ACI elects 1958 officers

Douglas McHenry of the Portland Cement Association and Joseph W. Kelly of the University of California have been elected president and vice president, respectively, of the American Concrete Institute. McHenry, who recently completed his second year as vice president of the institute, succeeds Walter H. Price, head of the engineering laboratories of the U. S. Bureau of Reclamation, Denver, Colo.

Kelly, elected to a two-year term, is professor and vice chairman of the department of civil engineering at the University of California.

Elected to three-year terms on the board of direction are A. Amirikian, S. J. Chamberlin, Bryant Mather, and Cedric Willson.

For more facts, circle No. 219



How you can meet every aggregate specification with ONE CEDARAPIDS UNITIZED PLANT

So far we haven't found any aggregate specification or volume requirement which cannot be met by one of the many different combinations of Cedarapids units that make up a Cedarapids Unitized Plant!

Unitized is the key word. Cedarapids manufactures every type and size of crushing and screening unit that experience has shown is needed to produce aggregate from any pit or quarry, in any quantity, and meet every specification. This equipment is **Unitized** . . . each unit is matched to every other unit for balanced production. Each unit complements every other in handling efficiently its part of the aggregate processing procedure. These units can be combined in dozens of different ways to meet whatever capacity and finished product demands your job calls for.

Perhaps one Cedarapids unit will do your job . . . maybe you need three, or five, if your capacity requirements run into the thousands of tons per hour, your pit conditions are difficult to crack, or the specifications you have to meet are unusually exacting.

With the big contracts coming up for the Highway Program, we urge you to get the facts about what a Cedarapids Unitized Plant can do for you. Talk to the many big-time operators who use them, then see your Cedarapids Dealer for specific details.

You're looking at a typical example of a Cedarapids Unitized Plant. The photo above shows one of the five different combinations of five Cedarapids units used by one contractor to handle material in three different pits and meet a wide variety of specifications. The five set-ups used on the job are detailed below.

SET-UP 1—As shown above, five Unitized Units were used . . . a Ground-Level Feeder, 2236 Portable Primary, Twin Jaw Scalping Plant, Commander Tandem Plant with pre-screening attachment, and a 4024 Roll Crusher Secondary.

SET-UP 2—Three of the same units used in the first set-up . . . Feeder, Scalper, and Roll Secondary . . . produced 220 tons per hour of minus $\frac{3}{4}$ " material.

SET-UP 3—The Commander Plant with pre-screening attachment, was used alone to produce 170 tons per hour of minus $\frac{3}{4}$ ".

SET-UP 4—Operating independently in the same pit as Set-up 2, the Commander and Twin Jaw Scalper with the Roll Secondary Plant averaged 3000 tons of $\frac{3}{4}$ " material in a 9-hour period, which included waiting time for trucks.

SET-UP 5—The Portable Primary and Commander Plant with pre-screening attachment were combined.

IOWA MANUFACTURING COMPANY

Cedarapids

CEDAR RAPIDS, IOWA, U. S. A.

Built by
IOWA

Wallace C. Fischer, newly elected president of the Expansion Joint Institute.



William E. Hagemeyer, new vice president of the Expansion Joint Institute.

Expansion Joint Institute elects Fischer president

Wallace C. Fischer has been elected president of the Expansion Joint Institute. He is also president of Serviced Products Corp., Chicago, Ill.

William E. Hagemeyer, elected vice president of the institute, is the sales manager of the Construction Materials Division, Presstite-Key stone Engineering Products Co., a division of the American-Marietta Co., St. Louis, Mo. H. G. Meadows, president of W. R. Meadows, Inc., Elgin, Ill., has been elected treasurer.

The three new officers were also elected to the board of directors, as was F. W. Lagerquist.



Anthony F. Ardizzone, president of the Society of Construction Superintendents, Inc.

Ardizzone is president of superintendents group

The Society of Construction Superintendents, Inc., has elected Anthony F. Ardizzone president. The former vice president of the society is general superintendent of construction for the Kretzer Construction Co., Inc., New York City.

Also elected are James Raimonde, vice president; David Shire, treasurer; Robert A. Morey, secretary; Al Ruff, sergeant-at-arms; Al Kieltyka, historian; and Paul H. Dowe, chairman of the board of governors.

Ebasco engineer named to Defense research post

Lambert L. Lind, Jr., principal electrical engineer in Ebasco Service Inc.'s Design and Construction Division, has been appointed special assistant to the director of the Advance Research Projects Agency, Department of Defense.

Nine county engineers to serve on BPR board

County engineers from nine different areas of the United States have agreed to serve as consultants to the Bureau of Public Roads. Serving as

a 9-man Board of County Engineers, they will be concerned chiefly with plans involving construction and improvement of secondary or farm-to-market roads which are eligible for federal aid.

Members of the board are F. Ray Williams, County Superintendent of Highways, Saratoga Springs, N. Y.; Mason A. Butcher, Director of Public Works, Montgomery County, Rockville, Md.; R. L. Morrison, County Engineer, Forrest and Stone Counties, Hattiesburg, Miss.; Lyle Fuller,

County Highway Commissioner, Marathon County, Wausau, Wis.

Other members of the board are George W. Deibler, County Engineer, St. Louis County, Duluth, Minn.; Joe Abramson, Parish Engineer, Caddo Parish, Shreveport, La.; Walter A. Burg, Pima County Engineer, Tucson, Ariz.; Donald B. West, County Engineer, Chelan County, Wenatchee, Wash.; and Lamont B. Gunderson, Chairman of the Board of County Commissioners of Salt Lake County, Salt Lake City, Utah.

Prescon appoints Cassaro

Michael A. Cassaro has joined The Prescon Corp., Corpus Christi, Texas, as a structural engineer. Cassaro was formerly city engineer in Troy, N. Y., heading up the design division and responsible for the design of roads, walls, maintenance, and other city projects.

The Prescon Corp. produces concrete post-tensioning tendons for use in buildings, bridges, and other structures.

WHEN THE PROBLEM IS

BIG ROCK

AND PLENTY OF IT

8,000 feet up Mt. Shasta in northern California, Everitt Memorial Highway is being extended to Panther Meadows where a new ski resort is under construction. Timber is being cleared to make way for the six miles of new road; overburden is being moved; crushed aggregate is being brought in. But the toughest job of all is wrestling with tons of big rock. No wonder J. W. Briggs & Associates are using a fleet of Caterpillar track-type Tractors—seven D8s and three D7s.

"We especially like those Cat-built U-blades," says Supt. M. S. McMillan. "They really stand up on this rock." As with any piece of big yellow equipment, the reason for this better wear is better design and manufacture. The No. 8U Bulldozer shown on the D8 in the picture, for instance, has cutting edges made of special "Hi-Electro" hardened steel. Powering this 11' 11" blade is the 191 HP (flywheel) Cat D8 Tractor.

Every detail of construction of this famous machine aims at easy handling of tough work: roller rims are forged of selected deep-hardened steel; track pins are made of selected medium carbon steel, "Hi-Electro" hardened; diagonal braces on the track roller frames are heavy steel forgings welded to nearly half the length of the frames.

Dozens of other features attest to the ruggedness of Cat-built crawler equipment and attachments. Get the whole quality story with a no-holds-barred demonstration on your toughest job. Call your Caterpillar Dealer today.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

**WHEN THE GOING
IS REALLY TOUGH**

Duff-Norton appoints district sales manager

T. B. Peterson has been promoted to district sales manager of the Duff-Norton Co., Pittsburgh, Pa., manufacturer of lifting jacks and hoists. Peterson will be responsible for sales activities in the general industrial field for the firm's Jack Division and Coffing Hoist Division. From headquarters in San Francisco, Calif., he will cover northern California, Nevada, Oregon, Washington, and western Idaho.

Tuttle Engineering begins fifth year in Alaska

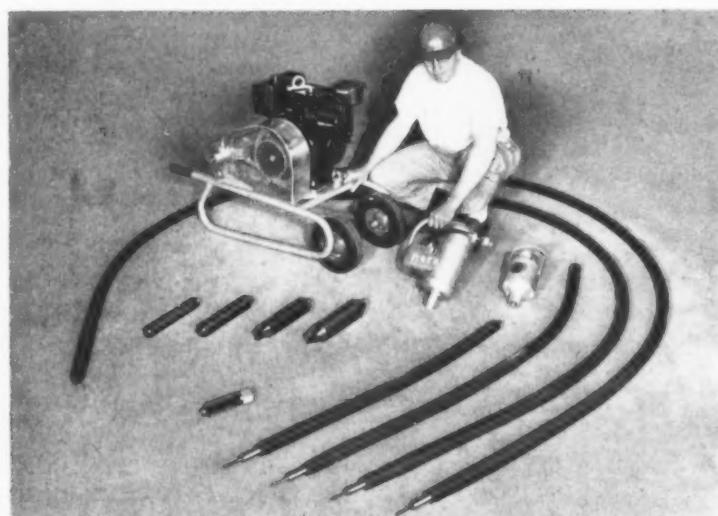
Tuttle Engineering, Inc., Arcadia, Calif., has started its fifth year of

surveying and engineering work in Alaska with a new \$500,000 contract. About 80 Tuttle men—engineers, draftsmen, and computers—will soon begin surveying and engineering roads, highways, and bridges in some of the isolated parts of Alaska. Some of the work will be as far as 1,400 miles from the Alaskan base of operations.

Areas to be covered include Anchorage, Palmer, Fairbanks, Ketchikan, Wrangell, Petersburg, Sitka, Haines, Cordova, Juneau, Valdez, Seward, Homer, Kodiak, and other more isolated areas. The roads will serve to bring the isolated people and towns of Alaska closer to the rest of North America.

Drive carefully—and save lives

How Viber Answers All Your Problems on Concrete Vibration



You reduce your capital investment—reduce your day-to-day operating and maintenance costs—and answer all your vibrating problems—by standardizing on Viber vibrating equipment.

You discover that the Viber line is the most complete line available—and that Viber internal vibrators driven by flexible shaft are the most versatile. With just 12 basic components, as shown in the photo, your men quickly and easily assemble any one of 48 shaft-driven vibrator combinations.

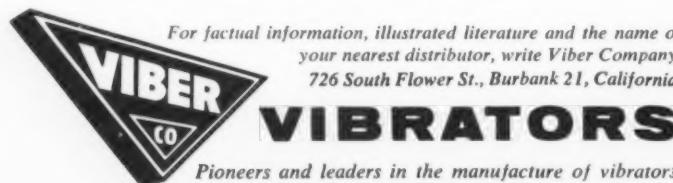
You use electric, pneumatic or gasoline power—whichever is most convenient for the particular job.

You have a 1 3/4" diameter vibrator head to assure efficient compaction in narrow forms, or where reinforcing

steel is closely spaced. You also have larger, interchangeable heads (2 1/8", 2 1/2" and 3" diameter), which are recommended for maximum efficiencies in more open forms.

You have a choice of flexible drive shafts in these lengths: four, six, 12 and 21 feet. Because all shafts are immediately interchangeable with any required Viber head and motive power, you can immediately adapt to a wide range of applications in narrow to moderately open forms. Shafts can be coupled to provide longer reach.

A wide variety of other types of Viber vibrators are available to answer all your concrete vibration problems—with the lowest possible capital investment and least possible operating costs.



For more facts, use Request Card at page 18 and circle No. 221

surveying and engineering work in Alaska with a new \$500,000 contract. About 80 Tuttle men—engineers, draftsmen, and computers—will soon begin surveying and engineering roads, highways, and bridges in some of the isolated parts of Alaska. Some of the work will be as far as 1,400 miles from the Alaskan base of operations.

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Drive carefully—and save lives



A DOUBLE-BARRELED PASS in this Tucson, Ariz., gravel bank is made by a pair of Michigan Model 175A 2 1/4-cubic-yard tractor shovels as they team up to load a scraper. Four of these passes usually do the trick at this gravel bank for M. M. Sundt Construction Co., Tucson.

AED publishes its "1958 Industry Directory"

The Associated Equipment Distributors have published their "1958 Industry Directory", a 382-page reference book of construction machinery distributors, manufacturers, products, and trade names. The book contains company names, addresses, key personnel, and phone numbers for over 2,000 bona fide firms in the construction machinery industry.

The directory is divided into four

sections. The first lists 1,400 distributors throughout the United States, Canada, Alaska, Hawaii, Mexico, England, and Puerto Rico. The manufacturers section lists over 600 firms and their distribution outlets. The last two sections list products and trade names.

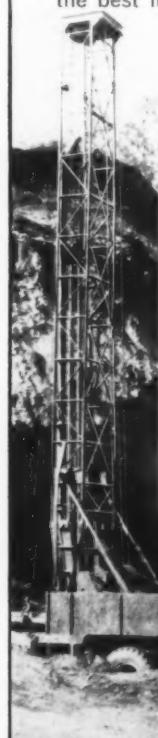
The \$20 directory may be purchased from the AED, 30 E. Cedar St., Chicago 11, Ill.

KEystone-FRANKS ROTARY MOLE DRILLING MACHINE

Phone for a Demonstration

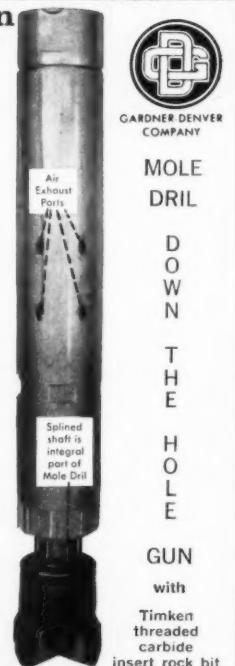
Telephone: Beaver Falls, Pa. 69, or Kearny, New Jersey, 2-2600

For 6 1/2" blast holes, our experience indicates that we can drill them faster and at a lower cost because we have combined the best in applied drilling engineering.



- Gardner Denver AMG Mole Drill
- Timken 6 1/2" carbide insert bits
- International Harvester Truck
- Cummins Diesel Engine
- Gardner-Denver WBJ Compressor, 600 CFM at 100 PSI
- Keystone Franks Rotary Mole Drilling Machine

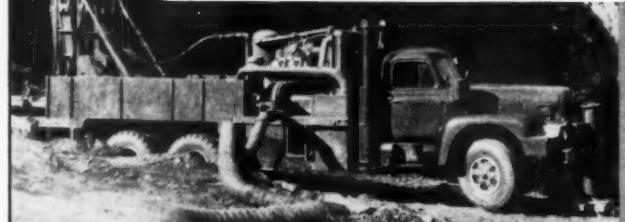
While we DEMONSTRATE what we can do, we cut your drilling costs at the same time. Phone or write us for a DEMONSTRATION on your quarry, mine, road or construction job.



MOLE DRIL

DOWNTHEHOLE

GUN with Timken threaded carbide insert rock bit



STARDRILL-KEYSTONE COMPANY

MAIN OFFICE: BEAVER FALLS, PA., TELEPHONE 69

BRANCH: KEARNY, NEW JERSEY, TELEPHONE 2-2600

MANUFACTURERS SINCE 1882

For more facts, use Request Card at page 18 and circle No. 222

CONTRACTORS AND ENGINEERS

Second revised edition on road problems

"Current Road Problems: Use of Air-Entrained Concrete in Pavements and Bridges" is a second revision of "Road Problems No. 13", published by the Highway Research Board. This current edition brings together the best practices prevailing throughout the country and the most widely accepted methods of test and control. Specifications of the American Society of Testing Materials which pertain to air-entraining have been included.

The bulletin discusses air-entrained concrete: durability, modulus of elasticity, volume changes, bond, resistance to wear and abrasion, and other characteristics. The chapter on materials deals with air-entraining portland cement, air-entraining admixtures, natural cements, finely divided materials, and aggregates. The remaining chapters cover air-entraining cements versus air-entraining admixtures; proportioning of mixes for air-entrained concrete; ready-mix concrete; and construction projects. An appendix contains references to literature on air-entrainment.

Priced at 50 cents, the bulletin may be purchased from the HRB, 2101 Constitution Ave., Washington 25, D. C.

Joy's Canadian subsidiary makes executive changes

Joy Mfg. Co., Ltd., of Galt, Ontario, Canada, has made a number of top-level management changes.

James A. Drain, former president, has been elected chairman of the board, and D. W. M. Ross has been elected to succeed Drain as president.

Drain, who is also vice president and general manager of the Mining & Construction Division of the parent company, Joy Mfg. Co., Pittsburgh, Pa., returned to the United States to assume his present position in 1956. He was retained as president of the Canadian subsidiary until the recent management change.

Ross, who joined the Joy organization in Canada as a branch manager in Calgary, Alberta, served as general sales manager and vice president and general manager before his election as president of the subsidiary.

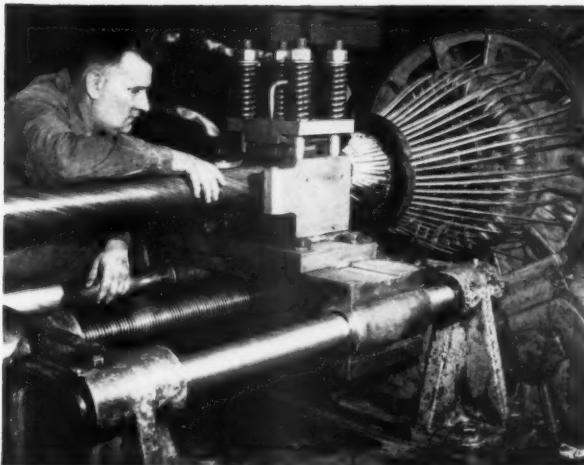
Yale & Towne elects two vice presidents

Elmer F. Franz and John A. Baldinger have been elected vice presidents of the Yale & Towne Mfg. Co., New York, N. Y.

Franz was also re-elected treasurer, a post he has held since 1949. Baldinger will continue to serve in Philadelphia, Pa., as general manager of the Materials Handling Division, which produces industrial lift trucks and hoists.

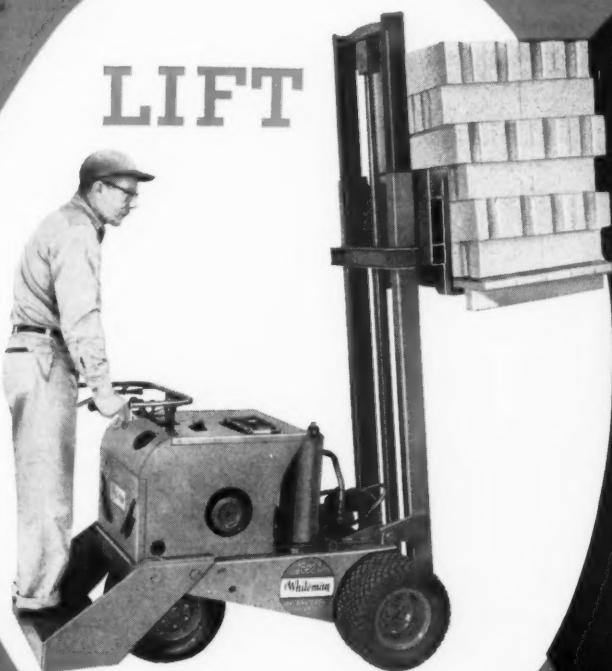
The cost of building federal-aid highways, says the BPR, dropped two per cent in the first three months of this year. Lower charges for excavation and steel are mainly responsible for the drop.

For more facts, use coupon or circle No. 223→



THE LARGEST LOCK-COIL CABLE of its kind, 4 inches in diameter, will support cableway buggies carrying construction materials at the Glen Canyon Dam in Arizona. The 48 lock wires, right, form the outer cover of the big cable, which is composed of 312 individual steel wires and weighs 38 pounds per foot. The cable leaves the "Queen Mary" wire stranding machine at the Trenton, N. J., works of American Steel & Wire Division of U. S. Steel Corp.

LIFT



PROFITS

with this New

WHITEMAN FORK LIFT POWER BUGGY

Bricks, blocks, mortar and many other building materials can be handled faster, easier, more efficiently and economically with the new Whiteman Fork Lift Power Buggy. This eager beaver picks up palletized loads, scoots along narrow runways at a good clip, lifts them as high as 7' 10". Turns in a 45° radius. Powered by a 6.8 hp Wisconsin engine. Has automatic clutch, forward and reverse gears. Rugged stamina assures dependable performance for which all Whiteman Power Buggies are noted. Call your dealer or send coupon for details now.

A Whiteman Power Buggy for Every Job



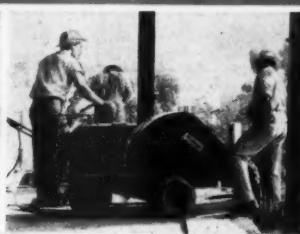
PALLET LIFT

For hauling palletized mortar, blocks, bricks, bags, etc. where high lift is not required. Saves labor and countless man hours.



DUMP BUCKET

Fastest, easiest, cheapest way to place concrete. Hauls 13 cu. ft. up to 16 mph. Turns on a dime. Climbs 20° grades. Tireless.



WALK OR RIDE

Saves time & labor placing concrete. Forward, reverse. Only 31" wide (with single wheels). 10 cu. ft. Light, compact, maneuverable.



FLAT BED

Ideal for materials, forms, lumber, etc. Five models, including type interchangeable with bucket body and Walk-or-Ride.

Whiteman

THE LEADER
IN CONCRETE
EQUIPMENT



WHITEMAN MANUFACTURING CO. Dept. C
13020 Pierce St., Pacoima, California

Please send prices, catalogs and name of distributor.

Power Buggy Vibrators
 Screening Machines Floating-Finishing Machines
 Truck Mixers

Name _____

Firm _____

Address _____

City _____

Zone _____ State _____



The extra unit brought in to speed the drilling rate is this Ingersoll-Rand Drillmaster. In the background, two of the Joy Champion 4-inch rotary drills work on the cut and the Bucyrus-Erie 71-B continues excavation.

One extra piece of machinery is making a lot of difference in work on a 2½-mile extension project near Ansonia, Conn.

Two shovels being used by L. G. De Felice & Son, Inc., North Haven, were operating at such a fast clip on this job that they were literally on the heels of drillers. But De Felice added one additional drill to the spread, and this was enough to permit the shovels to work at maximum productiveness. Earthwork on this \$2,500,000 project includes 300,000 cubic yards of rock excavation, 400,000 yards of borrow, and 200,000 yards of roadway earth excavation.

Also included in the contract are structures and reinforced-concrete paving, and more than three miles of 8 to 24-inch-diameter corrugated metal and reinforced-concrete under-drain.

Shovels set job pace

De Felice is using a Bucyrus-Erie 71-B shovel with 3-cubic-yard bucket and a Bucyrus-Erie 54-B with 2½-yard bucket to load the rock and earth to a fleet of eight Euclid 18-yard rear-dumps. Each shovel averages 1,300 to 1,600 cubic yards of rock excavation every 10-hour day, while about 2,000 yards of earth is

moved by the smaller Bucyrus-Erie 54-B.

At the outset, the contractor equipped the job with two Joy Champion 4-inch rotary drills and four Ingersoll-Rand 2½-inch jib drills, all front-mounted on Caterpillar D8 tractors. The jib drills are powered by Ingersoll-Rand 600-cfm Gyro-Flo air compressors mounted on a rear platform attached to the tractor. The Joy drills were also powered by rear-mounted I-R 600-cfm air compressors.

But with the shovels excavating faster than the rock could be loosened, De Felice brought an Ingersoll-

Rand Drillmaster to the job to speed the drilling operations and keep the shovels working at top efficiency.

Two drilling patterns are being used, a 5 x 5-foot spacing for the 2½-inch holes sunk by the I-R drill jibs and a 9 x 10-foot pattern for the 4-inch holes of the Joys and I-R Drillmaster. These drills are using carbide-insert bits on the 20-foot drill steel. The deepest cut on the 2½-mile stretch, about 55 feet, required three lifts. All the drilling units and the shovels are equipped with GM diesel engines.

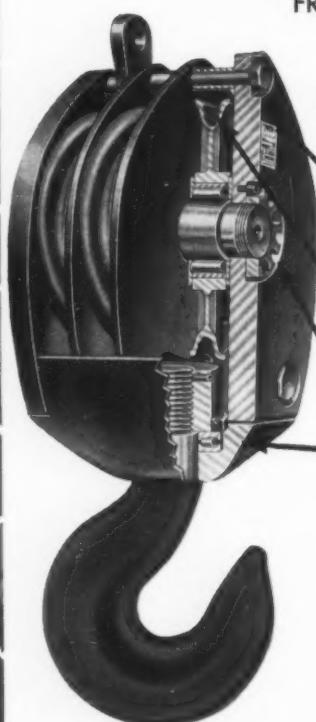
Holes are loaded with Du Pont No. (Continued on page 30)

Completely

STREAMLINED

FREE OF ALL OBSTRUCTIONS

DELUXE CRANE BLOCK

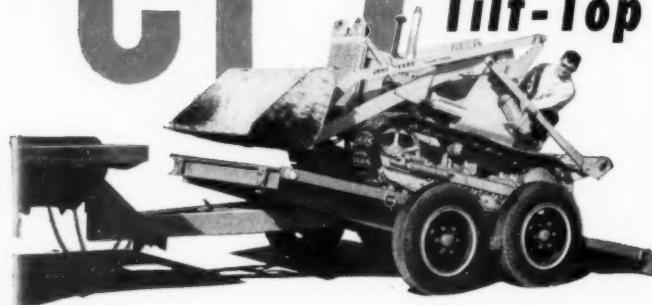


McKISSICK BUILDS A BETTER
BLOCK FOR EVERY PURPOSE



For more facts, use Request Card at page 18 and circle No. 224

NEW - 7 ton tandem axle MILLER Tilt-Top



loads 'em low...loads 'em in less than 2 minutes!



• WALKS OVER THE ROUGHEST TERRAIN

Rugged box section walking beams oscillate freely on either side . . . permit walk "over the wall" over the rough spots for less jarring and a more level ride. Deep race, precision ball bearings on walking beam shaft. Timken rollers on wheel spindles assure positive alignment—eliminate freeze-up downtime.



Here at last, is a "Tilt-Top" built to handle a wide variety of medium weight rigs . . . on tandem axle wheel suspension! Platform is "cradled" between the wheels for low overall height and an extra low climb angle that makes drive-on loading—for even such limited traction rigs as rollers—a TWO minute, ONE man operation. And, for easy backing, quick spotting maneuverability and straight line trailing . . . you can't beat this "pavement hugger". Built with the usual Miller huskiness, it's equipped with: • traction sure, 2 inch oak decking • heavily braced frame • adjustable pintle eye hitch, and • four, first line tires. Two way hydraulic tilt control and electric brakes are available as optional equipment. Can be ordered with either 14' or 16' long platform. See this fast loading new Tilt-Top at your MILLER distributor's today — you'll be surprised how ruggedly it's built — how modest its cost!

See your MILLER distributor
or write for FREE literature to:

Miller
Tilt-Top Trailer Inc.

456 - E 5. 92nd Street, Milwaukee 14, Wisconsin

For more facts, use Request Card at page 18 and circle No. 225

CONTRACTORS AND ENGINEERS

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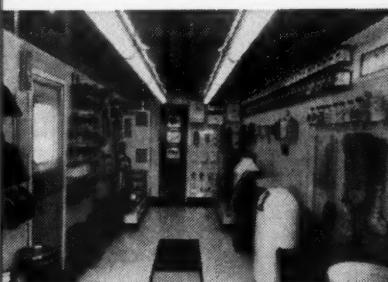
The perfect mobile field kitchen . . . gleaming clean, lots of built-in features . . . designed for efficiency and economy.



This Spartan industrial unit is equipped for . . . use as a classroom . . . sales meetings . . . product demonstrations . . . anywhere you want to take it.



Field men can direct company operations from this attractively furnished and fully equipped Spartan mobile office.



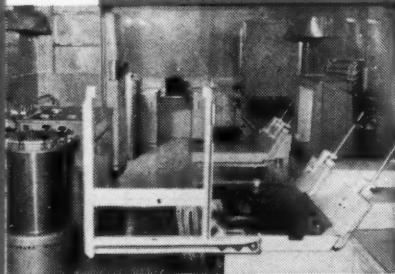
Here's a traveling salesroom, with a company's product line completely and neatly displayed. It can be moved easily and quickly.



This Spartan unit is equipped to serve as a parts storage room. Its mobility keeps vital repair parts close to field operations.



Rugged . . . lightweight . . . mobile . . . Spartan industrial units are used by many companies throughout the United States and in many foreign countries.



A field testing laboratory — rolls right along with the job itself . . . always ready for immediate use.



A fleet of Spartan industrial units enroute to a major oil company. Units are roving classrooms for filling station personnel training program.



Rock drilling is handled here by an Ingersoll-Rand jib drill mounted at the front of a D8, left, and a Joy Champion drill on a D8, right. Both are supplied with air by Ingersoll-Rand 600-cfm Gyro-Flo compressors.

Euclid 18-yard rear-dumps take some 180 to 200 loads of material per 8-hour day from this Bucyrus-Erie 71-B with 3-yard bucket. The shovel was one of two excavating for a road extension project in Connecticut.



(Continued from page 28)

1 gelatin dynamite topped with Red Cross dynamite. These charges are capped at the bottom of the holes, millisecond delays being used to allow the blast to progress from the bottom up. This type of blasting works well in the seamy blue rock, which generally is tricky to blast.

River relocation

The rear-dumps haul all the blasted rock to fill areas along the project and to a diversion channel being built in order to relocate the Naugatuck River. Most of the borrow for the job is being supplied from this diversion channel, which is being excavated by Caterpillar DW21 scrapers, a dragline, and a Euclid bottom-dump hauling fleet.

This new channel, about 200 feet wide and 10 feet deep, will be used to swing a 1,000-foot-long section of the river 200 feet east of the existing alignment. This will allow the State Route 8 expressway-bypass alignment to run over the existing Naugatuck River channel.

The blasted rock removed from the roadway is being used to build up the roadway grade; it is also being placed in the existing river channel as backfill and along the western edge of the new channel as protection against erosion. A 25-foot lift of blasted rock, topped with 15 feet of gravel, will be required to complete the diversion and to build up the roadway grade.

To spread the fill and assist in the scraper borrow operation two Caterpillar D8 tractor-dozers, equipped with torque converters, and two D9's are used. Other equipment on the job included three Caterpillar No. 90 scrapers, pulled by Allis-Chalmers HD-20 tractors, which handled the stripping phase of the work.

When completed this fall, the road will consist of two 24-foot reinforced-concrete roadways, separated by a 6 to 12-foot asphaltic-concrete median. The 8-inch-thick concrete roadways, designed with acceleration and deceleration lanes, will be flanked with 10-foot macadam outside shoulders and 2-foot inside shoulders.

Personnel

Earle S. Smith is the job superintendent for L. G. De Felice & Son, and Mansfield Dewell is the resident engineer for the Connecticut State Highway Department.

THE END



SAVES ENGINES!

Use Sinclair SUPER TENOL® to save your Diesels from the harmful and costly effects of *severe* operating conditions. Sinclair SUPER TENOL is specially engineered for the tougher jobs! It saves engines by combating the effects of high temperature, over-loading, and continuous stop-and-go service. It helps eliminate deposits of varnish, carbon and sludge that impair engine efficiency. Experience shows that Sinclair SUPER TENOL keeps equipment on the job longer with less wear and fewer repairs!

Refill now with Sinclair SUPER TENOL. Contact your local Sinclair Representative or write Sinclair Refining Company, Technical Service Division, 600 Fifth Avenue, New York 20, N.Y. *There's no obligation.*

SINCLAIR SUPER TENOL MOTOR OIL

For more facts, use Request Card at page 18 and circle No. 227

Now being told on the inside...

THE BLUE BRUTE ROTARY STORY

all about the 5 big benefits of the
portable compressor with the
exclusive over/under design 

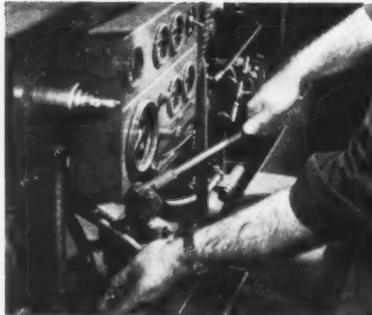
For more facts, turn page →



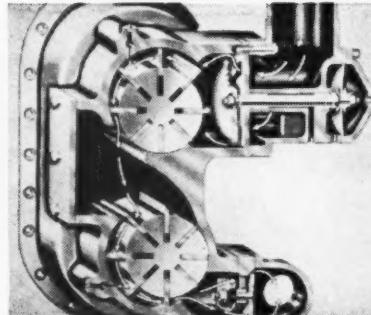
ONLY BLUE BRUTE



Accessibility—All the principal working parts of a Blue Brute rotary can be removed and replaced in just 40 minutes with standard tools! The reason is Over-Under Design which keeps the outboard end of each cylinder exposed. You can check it on the spot and make adjustments without delay.



The Clutch—Unlike most rotaries, a Blue Brute's clutch allows you to warm up the engine *without engaging the compressor*. Less strain on the engine means easier starts, less wear and tear, years of extra life. As shown above the clutch is easy for the operator to engage and disengage.



Self-Draining Cylinders permit gravity flow of oil from low pressure cylinder through the interstage chamber, through the high pressure cylinder, and out the discharge to the oil reservoir. Oil cannot be trapped in cylinder low spots during shutdown. No chance for sludge or tar clogging the compressor.



Two-Stage Oil Separation—The first stage is a Vortex separator in the compressor discharge which removes 95% of the oil. (In the 125' rotary a velocity change elbow is used.) The second stage is a vertical filter located in the air receiver. This is a long-life filter easy and inexpensive to renew.



THE OFFERS THE BIG 5

thanks to exclusive
over/under* rotary
compressor design

**Over/under design is a unique method of construction that puts the second stage compressor cylinder directly under the first stage. It is an exclusive Worthington development that benefits you five ways.*

Compare the Blue Brute rotary compressors with other leading units, feature for feature. Only the Blue Brute has the big 5 benefits. Blue Brute rotary compressors are available in 125', 210', 315', and 600' sizes from your

nearby Worthington Blue Brute distributor. Ask for a demonstration. Worthington Corporation, Portable Compressor & Contractors' Tool Division, Holyoke, Mass. In Canada: Worthington Ltd., Brantford, Ont.

60-7



Chain Drive—Driving power, from the high pressure rotor shaft to the low pressure shaft, is a strong silent chain drive. Based on actual field experience, this drive has a predicted life in excess of 20,000 hours, or 10 hours a day, 200 days a year, for more than 10 years!

WORTHINGTON

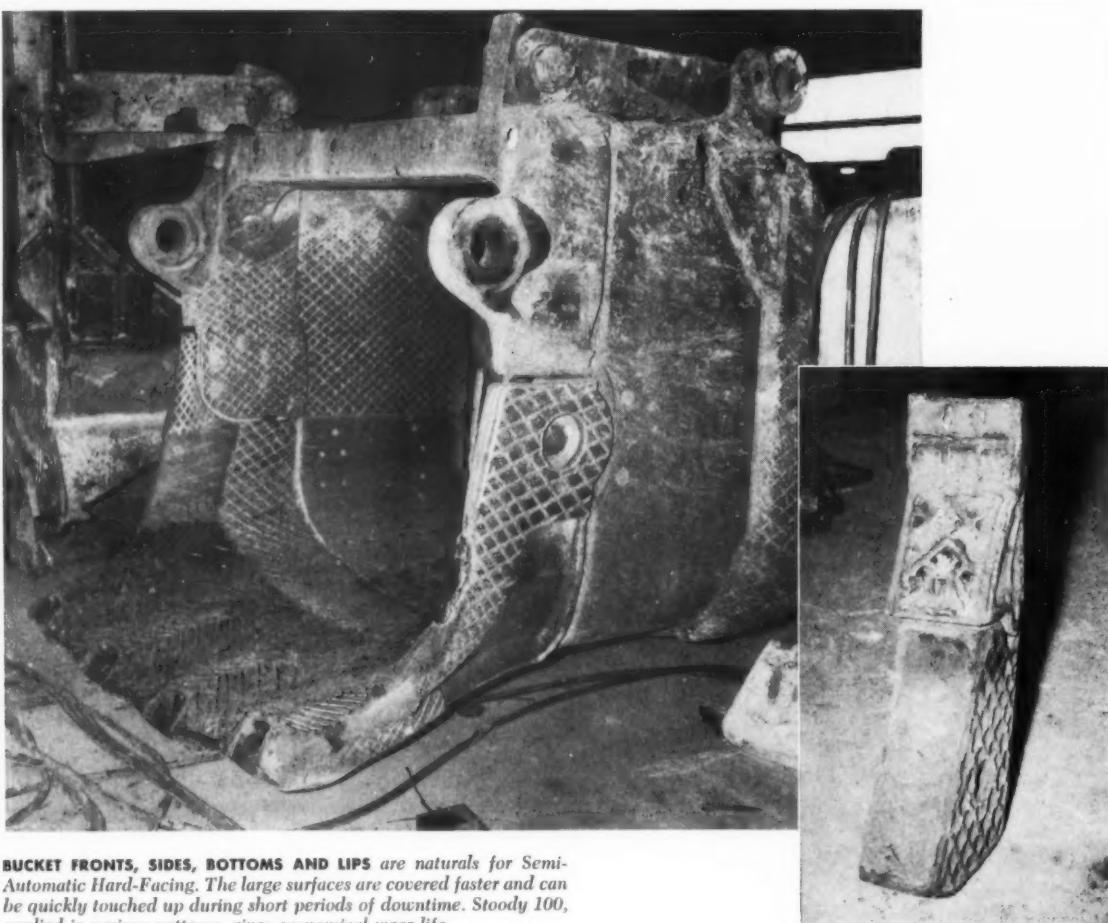


For more facts, use Request Card at page 18 and circle No. 228



Material being excavated from the old road by this Cat DW10 scraper is being used to build up a relocated stretch of U. S. 29 near Charlottesville, Va. The Cat D8 pushing has a ripper attachment which was used to break up the old pavement.

Current and future grading telescoped into one job



BUCKET FRONTS, SIDES, BOTTOMS AND LIPS are naturals for Semi-Automatic Hard-Facing. The large surfaces are covered faster and can be quickly touched up during short periods of downtime. Stoody 100, applied in various patterns, gives economical wear life.

BUCKET TEETH AND ADAPTERS are hard-faced with Stoody 100. Usually, stringer beads are applied counter to direction of material flow, with more effective wear resistance.

Better wear protection, faster application on shovel parts

with STOODY SEMI-AUTOMATIC HARD-FACING!

Hard-facing jobs that used to take hours can now be done in minutes. These tremendous time-savings are the result of Stoody Semi-Automatic Hard-Facing...a process that puts down 2 to 4 times more hard metal per hour than is possible by manual welding. Here's a way not only to cut maintenance costs, but to simultaneously lighten work loads on welding crews...provide more time to finish work that normally piles up—or never gets done!

With Stoody's complete line of alloys in wire form for semi-automatic hard-facing, an exact choice best suited for each wear problem is available. Get the full facts on Stoody Semi-Automatic Wires and

see how you can cut welding time, simplify maintenance and still obtain the same high wear resistance available in other Stoody Alloys.

TEST STOODY SEMI-AUTOMATIC HARD-FACING IN YOUR OWN PLANT—Arrange now for a personal demonstration with any Stoody Distributor. Check the Yellow Pages of your phone book or write direct.

STOODY COMPANY

11904 East Slauson Avenue
Whittier, California

For more facts, use Request Card at page 18 and circle No. 229

By securing roadway fill from rock cuts, as well as roadway cuts, the contractor reconstructing U. S. 29 south of Charlottesville, Va., did not have to haul borrow to the job.

Equally important, little or no rock removal will be required whenever this 2.1-mile stretch is converted into a 4-lane road in the future. The 209,000 cubic yards of granite excavated under this \$414,000 contract by Faulconer Construction Co., Inc., Charlottesville, clears a wide swath for any future work.

Wagon drills

The contractor used two Ingersoll-Rand wagon drills, powered by an Ingersoll-Rand 600-cfm rotary air compressor, to sink blast holes on 5x5-foot centers through the tough granite. On all the cuts—the deepest of which was 40 feet—Faulconer used two lifts to remove the rock. A 2 1/2-inch-diameter carbide-insert bit was used to sink a few feet of hole, then it was replaced with a 2 1/4-inch bit for the remaining depth. It took between 20 and 30 minutes to drill an average 16-foot, 2 1/4-inch hole into the solid granite.

Hercules and Du Pont gelatin dynamite, used to blast the rock, produced about two cubic yards of granite per pound. This blasted rock, excavated by a Lorain 2-yard shovel, was hauled to the various fills on the new alignment by an Athey side-dump rock wagon, a Euclid rear-dump, and two Koehring Dumptors. All rock removed, as well as the 209,000 cubic yards of roadway excavation, was used to build up the new roadway. Borrow and waste operations were eliminated; at the same time, the roadway was made free from rock cuts to a width that will accommodate 4-lane construction in the future.

Reconstructed road

After the existing pavement of U. S. 29 was removed by a Caterpillar D8 tractor-dozer equipped with a Cat rear-mounted ripper, the rock and roadway excavation was handled by three Caterpillar DW10 scrapers and a Euclid S-18 scraper. These units were push-loaded by the Cat D8 and a D7 tractor. The subgrade was compacted by a Buffalo-Springfield 10-ton, 3-wheel roller and graded with a Cat D7 tractor-dozer and two Cat motor graders.

The 10-inch soil-aggregate base course was built up in three lifts of

New Products to Aid Roadbuilders in '58

**Costly spreading problems
solved with new,
high-production machines**

With rapidly rising prices cutting into the profits from roadbuilding contracts, new equipment that can reduce expenses has found immediate acceptance.

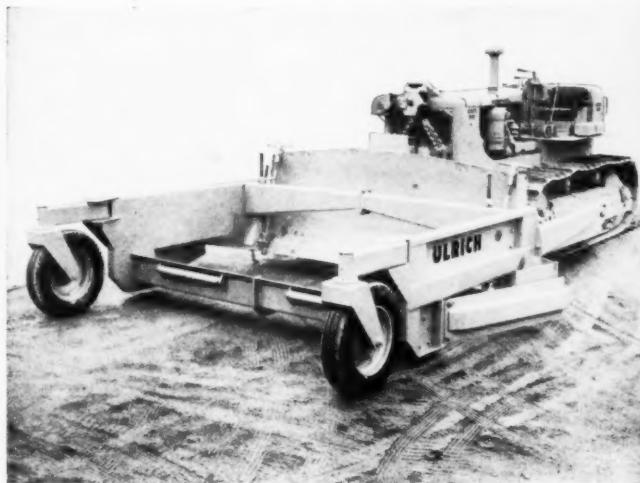
Two such machines, that promise lower costs in spreading, have been announced by Ulrich Manufacturing Co. of Roanoke, Illinois. The new units are designed to work with economy-proven Caterpillar Diesel Motor Graders or Tractors and, since they are easily

added attachments, increase the versatility of those machines.

Both tools are the result of an extensive research and development program by Ulrich and embody many new engineering features that meet specific needs of today's highway construction projects. Both offer more economy for the roadbuilder. Your Caterpillar-Ulrich Dealer can show you how. Call on him!



THE NEW ULRICH T-40 TRENCH FILLER AND SHOULDER SPREADER . . . a profitable new attachment for your Cat No. 12 or 112 Motor Grader. Spreads up to 10' width, with the grader on pavement.



THE NEW ULRICH DOZER-SPREADER . . . attaches to D6, D7 or D8 dozers in ten minutes or less. Uses dozer blade for strike-off. Spreads from 1"-20" deep, 10'-16' wide. Other widths available on request.



ULRICH Manufacturing Co.
Roanoke, Illinois

In road widening . . . in shouldering . . .

Faster Material Placement Cuts Costs . . .

New Ulrich T-40 Trench Filler and Shoulder Spreader places stone, gravel, sand, hot or cold asphalt mixes — any spreadable material.

Costs of placing and spreading materials in road widening and shouldering are sharply cut by the new high-production Ulrich T-40. The T-40 is attached to a Caterpillar No. 12 or 112 Motor Grader—with just three bolts and a pin—in about 10 minutes.

The grader provides plenty of power for pushing trucks ahead as material is dumped into the two cubic yard, high-tensile steel hopper. An adjustable dump apron moves up and down, under hydraulic power, to match varying truck heights. Caster wheels, with hard rubber tires, support the front end and maintain a constant spreading depth.

The 30" wide heat-and-acid-resistant neoprene conveyor belt, powered by a 50 H. P. engine working through a hydraulic motor, carries the material to the strike-off blade. Speed of the conveyor can be varied by a lever control to match the type of material being handled and machine travel speed.

Handles any spreadable material—stone, gravel, sand, hot or cold asphalt mixes—as fast as trucks can deliver it to the hopper.

Each end of the angling strike-off blade is independently controlled—at the toe by a hydraulic cylinder, and at the heel by grader blade lift controls. Grades, from eight inches above to sixteen inches below road surface, can be accurately maintained. Width of spread is varied up to 24" by simply rotating the grader circle.

Width adjustments from 24" to 10' are made by adding or removing one foot blade sections. The motor grader's long wheelbase counteracts side draft of the maximum length spreader blade. Traffic can continue in one lane as the T-40 width, on the roadway, is just 10 feet.

A high, well-cushioned seat gives the operator an unobstructed view of his work and machine. Levers, controlling the strike-off blade, dump apron and conveyor speed, are conveniently located for instant, accurate adjustment of every operation.

The result of the T-40's work is a level grade which requires no hand work or grader blading. There are no voids nor segregation of material; the field trench or shoulder is ready for compaction.

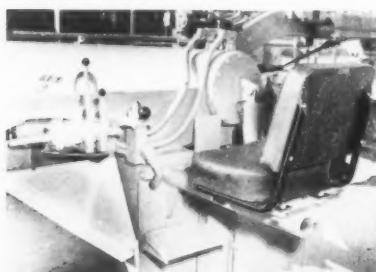
The Ulrich T-40 *Trench Filler and Shoulder Spreader* fills the need for a low-cost, high-production machine that can complete the eight to ten foot shoulders required in the Federal Road Program.

It can make money for you!

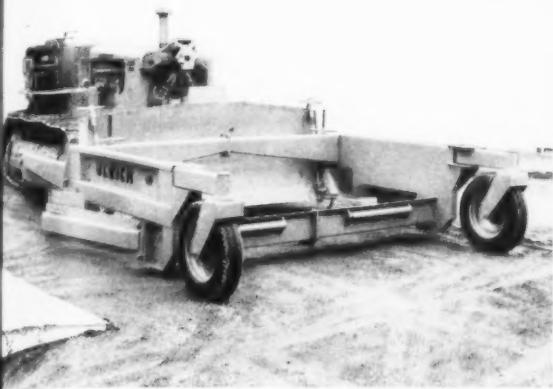


EXTRA HEAVY CONSTRUCTION . . .
with a rugged torque tube and box beam main frame that is an integral part of the all-welded high-tensile steel plate hopper.

CONTROLS . . . hydraulic, for positive, accurate adjustment of components, are within easy reach of the operator's seat.



UTILIZING THE CAT MOTOR GRADER for prime power cuts initial investment in half over one-purpose, self-propelled machines. There is more production, greater work range, less operating expense, easier maintenance.



To save your equipment dollars . . .

This Base Spreader Uses Your Dozer Blade

THE ULRICH DOZER-SPREADER is an attachment for any Cat D8, D7 or D6 Tractor, with straight or angling dozer blade, cable or hydraulic controls. Utilizing the dozer as a strike-off blade saves you both time and money.

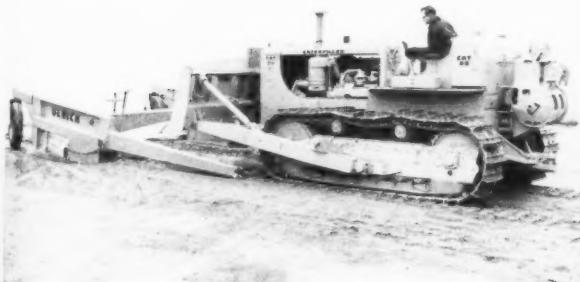
You already own the major portion of this base spreader. The new Ulrich Dozer-Spreader quickly attaches to your dozer-equipped Caterpillar Diesel D8, D7 or D6 Tractor. There's nothing to remove and your tractor is ready for spreading in minutes or can be converted, just as quickly, back to dozer work.

The big capacity hopper, of all-welded, high-tensile steel plate, receives material as the tractor pushes the truck and the spreader ahead. A 12' wide front opening permits use of the largest dump trucks. The dozer blade is used for striking off the material; hence, rock, gravel, stone or other difficult materials are easily spread.

Depth of spread, variable with two, easily-set, large acme-threaded adjustment wheels, ranges from 1" to 20". Width of spread, varied by opening or closing wings, ranges from 10' to 16'! Wheel position easily adjustable to permit proper matching of spreads. Wheels caster, permitting normal operation on curves.

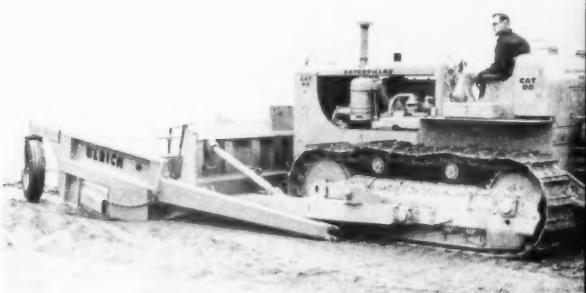
The material is spread to grade in one pass—there's no grader blading or hand filling necessary. Compactors can start work immediately.

The Ulrich Dozer-Spreader can increase the money-making ability of your Cat Diesel Tractor and reduce your spreading costs. Your Caterpillar-Ulrich Dealer can give you the details.

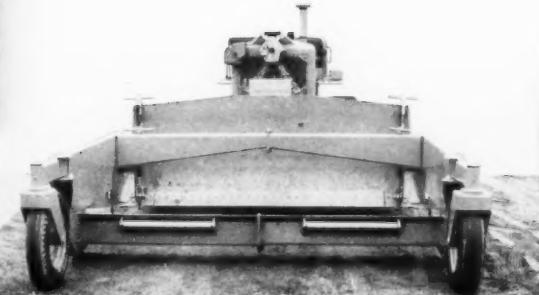


Mounts in minutes . . .

1. Raise dozer blade and move forward until spreader push arms are cleared.



2. Lower dozer to just above ground level, continue forward until trunnions can be attached and dozer blade slips into blade clamps on spreader.



3. Go to work spreading gravel, rock or other hard-to-spread materials—there's plenty of power.



ULRICH Manufacturing Co.
Roanoke, Illinois

NEW IMPROVED
DOMOR
ELEVATING GRADER



The Ulrich DOMOR Elevating Grader attachment, for Caterpillar No. 12 and No. 112 Motor Graders, has long been well-established as a high production, money-saving tool for casting up new roads, loading, ditching, ditch maintenance, stripping and terracing.

Now, these *new features* and *improvements* have added to the productivity and service life of this low-cost earth mover:

- All new, heavy duty conveyor gear box.

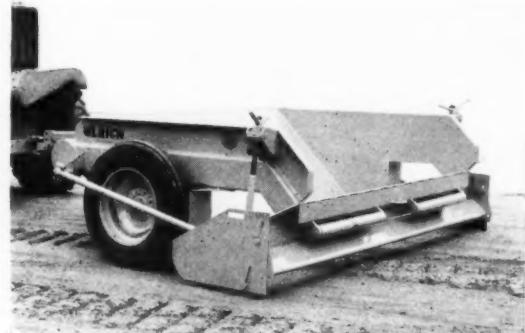
- Large capacity hydraulic clutch—with 3-year service warranty.
- Special cleated conveyor belt, with cold rubber cover —Nylon filler and breaker strip.
- Belt guide rollers—protect conveyor belt.
- Hinged conveyor—for easier transporting.
- Improved belt tightening arrangement.

Let your Caterpillar-Ulrich dealer demonstrate a new DOMOR Elevating Grader on your job.



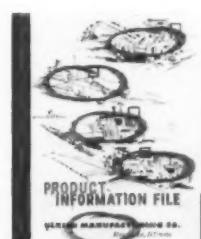
The Ulrich Road Widener

Cuts a trench of specified width and depth, with a clean, level bottom. Old paving is scoured clean for bonding. Costly hand labor is eliminated. Preparation time is cut as much as 65%; costs are cut in half. Attaches quickly to a Cat Motor Grader.



A new Pull-type Spreader

Fills the need for a base spreader where dump trucks are not permitted on the prepared sub-base; or any other application where a low-cost, pull-type spreader can be used to advantage. Spreads from 10' to 14' widths, and 1" to 10" depths.



Send for free information kit . . .

Write direct for a handy file of facts on the Ulrich product that fits your particular work. Indicate your interest—in the T-40 Trench Filler and Shoulder Spreader, Dozer-Spreader, Elevating Grader, Road Widener or Pull-type Spreader. There's no obligation.



ULRICH Manufacturing Co.
Roanoke, Illinois

**Roadway fill is obtained from rock cuts
alongside relocation; work eliminates need
for excavation in future 4-lane construction**

The grade through one of the deep rock cuts is compacted by a Bros sheepfoot roller pulled by a Cat D7 tractor-dozer. By excavating rock as fill for the new roadway, the contractor provided room for a future 4-lane road.



4, 3, and 3 inches, which were compacted by a pneumatic roller. The base-course material, mixed with a calcium chloride additive to assist stabilization, was placed in 12-foot widths by a Jaeger self-propelled spreader. The new roadway was finally topped with a 1½-inch binder course and a ¾-inch wearing surface of asphaltic concrete.

Personnel

James Faulconer was the superintendent for Faulconer Construction Co.; W. W. Shields was the resident engineer for the Virginia Department of Highways.

THE END

**HRB bulletin reports
on highway capacities**

Six papers on "Highway Capacity Studies" are contained in the Highway Research Board's Bulletin 167. The first paper compares the relative efficiencies of mass transit vehicles and private automobiles in the utilization of street space.

Also discussed are a new method that determines the capacity of rural roads in the mountainous areas of West Virginia; theoretical means of checking weaving areas before construction; and bottleneck conditions on Connecticut's Merritt Parkway following a flood. The other two papers describe comparison studies on pressurized intersections; and analyze automatic traffic recorder data for rural highways.

The \$1.60 bulletin may be purchased from the HRB, 2101 Constitution Ave., Washington 25, D. C.

**David White Instrument
offers surveying handbook**

A handbook of practical applications for the use of David White levels and level transits has been published by the David White Instrument Co., 2051 N. 19th St., Milwaukee 5, Wis. The handbook is offered to surveyors, engineers, builders, construction personnel, and students at 25 cents per copy. The company will quote special bulk rates on request.

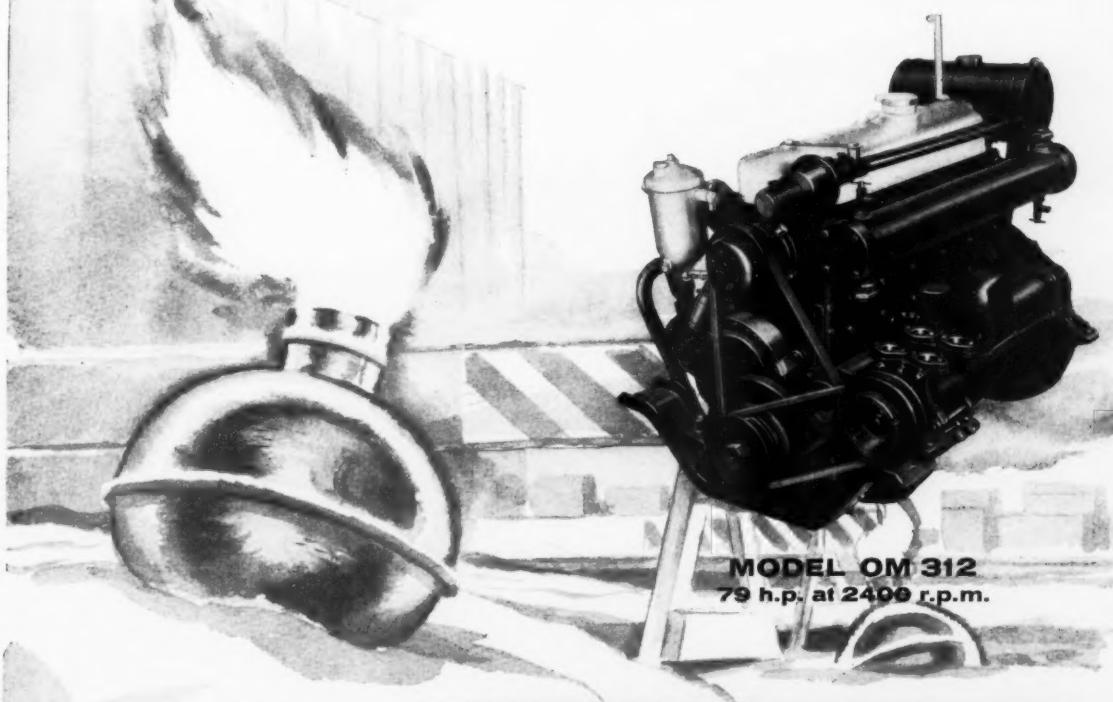
Entitled "From Point to Point", the book tells how to set up each instrument, how to read horizontal and circle verniers, sighting and focusing the telescope, and handling precautions. Specific instructions and detailed drawings are included in the volume.

**Dependable Power
For Every
Construction Application!**



MERCEDES-BENZ
DIESEL ENGINES

The effortless performance and ultra-dependability of Mercedes-Benz diesels are the two most important qualities affecting the construction industry . . . Nothing is more important than keeping equipment on the job, working at a profit . . . The time-proven Mercedes-Benz diesel engine works on the 4-stroke principle with a pre-chamber combustion process assuring greatest possible quietness and smokeless combustion even under changing loads . . . Maintenance is simple, fuel consumption low and minimum space is required for installation . . . Engines are now available in ratings from 36 to 1385 h.p. to power practically every machine.



Other Mercedes-Benz diesels available in 12 and 20 cylinders, Turbo and Supercharged, up to 3000 h.p.

UTICA DIVISION
CURTISS-WRIGHT®
CORPORATION • UTICA, MICHIGAN

Cableway, batching setup at dam speeds concrete to placement crews

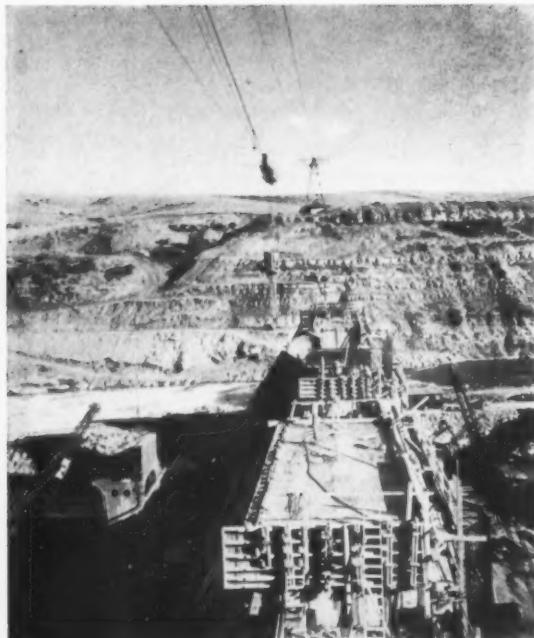
Joint venture takes 17 months to finish

\$5 million job at Cochrane Dam

and Powerhouse on the upper Missouri River



Concrete placement at Cochrane Dam is swiftly paced on this upper Missouri River structure. A Lidgerwood cableway carries a Gar-Bro 4-yard bucket to a monolith being poured.



Different phases of the job are busy just before closure and diversion. While concrete is being placed for the monolith, a P&H crane, left, sets steel for the powerhouse and an American crane, right, works on the intake structure.



A Koehring Dumper that delivers to the cableway is loaded at the C.S. Johnson batch plant which is located on a bench, its top almost on a level with the top of the gorge. The plant receives aggregates from the almost horizontal conveyor



A Euclid unloads aggregate to a surge hopper just below the rim of the gorge. The conveyor delivers the aggregates to the batch plant, the top of which is visible. A cableway tower stands at the far side of the gorge.



At the aggregate stockpiles, more than a quarter of a mile from the plant, a Michigan 175A tractor shovel loads a Euclid end-dump making the run between the stockpiles and the batching plant.

Placing 107,000 cubic yards of concrete in less than a year, a joint venture of Winston Bros. Co., Minneapolis, Minn., and Green Construction Co., Des Moines, Iowa, completed a \$5 million contract for the construction of Cochrane Dam and Powerhouse in 17 months. The hydroelectric plant, built for the Montana Power Co., is located on the Missouri River about eight miles downstream from Great Falls.

Cochrane Dam is a concrete gravity structure 870 feet long and 103 feet high. Its two generators, powered by 42,000-hp turbines, will produce 60,000 kw needed for industrial expansion in this area. On the design of the project, Bechtel Corp., Los Angeles, Calif., served as the engineering firm for the power company.

At the start of the job, Winston and Green built a big U-shaped earth and rock-fill cofferdam, extending out from the left bank to enclose the powerhouse area and about three-fourths of the dam. When the cofferdam was unwatered, shovels and "Eucs" excavated the footing area down to solid rock. All loose and unsuitable material was stripped from the abutments on both sides.

The underlying rock was sealed by a grout curtain, placed down the axis of the dam. The 2½-inch grout holes were drilled at 20-foot spacings to a maximum depth of 40 feet. Drilling and grouting were done under a subcontract by Continental Drilling Co., Los Angeles.

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The convenient location of the C. S. Johnson batch plant is viewed from the right bank. Its top is nearly level with the top of the gorge.



Concrete plant on hillside

While the preliminary work was under way in the foundation area, the contractors were setting up a 1,400-foot Lidgerwood cableway with a capacity of 10 tons to handle the forms and place the concrete for the dam. They also set up a C. S. Johnson concrete plant to produce the concrete.

The big Johnson plant was located on a bench on the left bank, and its top was just about level with the ground at the edge of the gorge. This made it possible to deliver aggregates to the plant with a short, nearly horizontal conveyor instead of the usual long, inclined conveyor.

The four sizes of coarse aggregate ranging from 6-inch down, plus the sand, were delivered to the site by rail and stockpiled more than a quarter of a mile from the plant. A Pioneer radial stacker conveyor transferred the materials from the hopper-bottom rail cars to the several stockpiles.

A Michigan Model 175A tractor shovel reclaimed material from the stockpiles and loaded a Euclid end-dump that delivered to the plant. The "Euc" dumped into a surge hopper which fed a 24-inch belt leading to the distributor at the top of the plant.

Since the specified concrete contained both portland cement and pozzolana, provision was made at the plant for handling both of these materials. Truck transports delivered cement right to the plant from the Ideal Cement Co. plant at Trident, Mont. The material was stored in a single big silo with a capacity of 2,553 barrels. The plant had an additional central compartment holding 265 barrels of cement.

The pozzolana, delivered to the site in rail cars, was transported to the plant by trucks with enclosed bodies. A screw conveyor took the material from the hopper-bottom cars to a surge bin that loaded the trucks. Hoses were built into the tail gate of each truck so that the material could be transferred into the plant hopper without opening the tail gate. Two silos at the plant provided storage for 127 tons of pozzolana.

Two Smith 2-cubic-yard mixers on the lower platform of the plant tower mixed the concrete and discharged it into a 6-yard wet-batch hopper. Koehring Dumptors picked up 4-yard loads of concrete from this hopper.

(Continued on next page)



BIG PROJECTS PROVE IT!

Firestones move more yards per hour on every shift!

From the Texas Turnpike to the Niagara Thruway, Firestone Rock Grip Tires with S/F (safety-fortified) Nylon are reducing breakdown losses, cutting tire costs. Tough Firestone cord bodies withstand severest punishment to last longer with less downtime than any other tire! Two great non-directional tread designs adapt these off-the-highway tires to any job condition and eliminate excessive spare tire inventories. You get the flotation and traction you need in loose earth and wet going. With the same tire you get S/F Nylon's armored protection for hauls over splintered shale and blasted rock. Firestone tires resist cuts and slugging impacts like no other tires made. Ask your Firestone Tire Expert about these tubed or tubeless extra heavy-duty tires. Call him today at your Firestone Dealer or Store.

Firestone
BETTER RUBBER FROM START TO FINISH

Enjoy the Voice of Firestone on ABC television every Monday evening.

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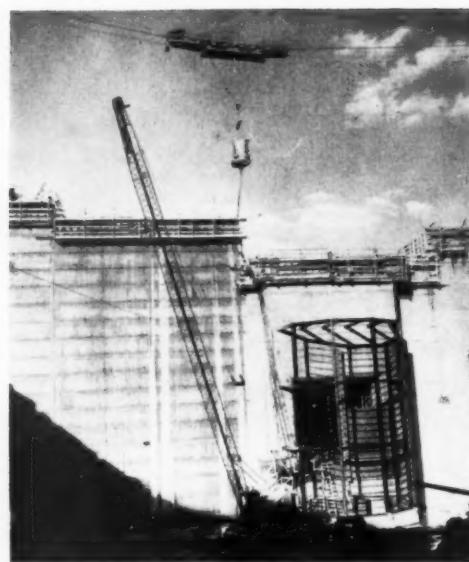
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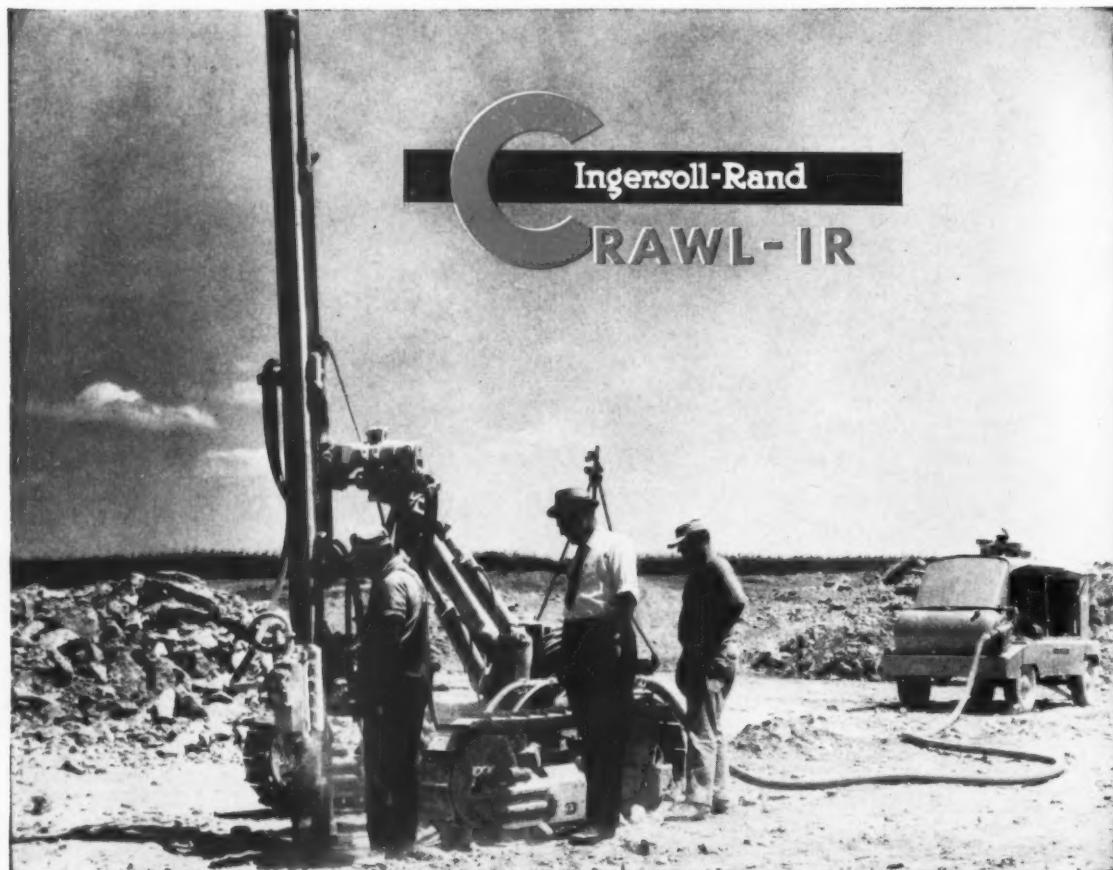
ROCK GRIP WIDE BASE ROCK GRIP



The long tremie on the Gar-Bro 4-yard bucket eliminates the need for a number of tremies on forms while concrete is placed. The Lidgerwood cableway, with a capacity of 10 tons, handled forms as well as concrete buckets on this job.



An American Model 300 truck crane works on the trash racks at the dam.



"THE BEST WE EVER HAD"

says Francis Smalley, President
D. R. Smalley & Sons, Inc.

"It's by far the fastest of its kind and that's just what we wanted. The best we ever had!" This is Francis Smalley's comment on the new CRAWL-IR shown above. It proved its performance on the rock work for relocation of highway U.S. 40 on the outskirts of Dayton, Ohio, under contract to D. R. Smalley & Sons, Inc., of Celina, Ohio.

The CRAWL-IR, with fully hydraulic controls, was used with I-R Carset bits and powered by a 600-cfm GYRO-FLO portable compressor—a team which easily broke all previous performance records for this type of work.

The Ingersoll-Rand CRAWL-IR is a completely mechanized, self-propelled knee-action crawler

drill at its rugged best. Five large, double-acting hydraulic cylinders move the feed tower to any position at the touch of a throttle. Reverse rotation of the powerful D-45 drill permits adding and removing coupled steels in a hurry. And the powerful, air-motor-driven crawlers permit the unit to tow its own compressor, even over rough terrain.

Time formerly spent in moving, setting up and steel handling is now turned into *drilling time*. With drill positioning fully mechanized, one-man operation is entirely feasible.

Ask your I-R man for complete information on the time-saving, money-saving features of the new CRAWL-IR.



Ingersoll-Rand
11 Broadway, New York 4, N.Y.

A CONSTANT STANDARD OF QUALITY IN EVERYTHING YOU NEED FOR DRILLING ROCK
For more facts, use Request Card at page 18 and circle No. 233

(Continued from preceding page)

per and carried them to a loading dock under the cableway. The Dumptrucks discharged their loads into a Gar-Bro 4-yard air-dump bucket which remained on the hook of the cableway. The cableway delivered the bucket to the monolith being poured.

The dock where the bucket was loaded was so arranged that the bucket could be set on a U-shaped platform with an open center when an elephant trunk was required. This made it possible to leave a long 12-inch-diameter flexible tremie attached to the bottom of the bucket. The tremie was long enough to reach to the bottom of the deepest forms, making it unnecessary to use any other tremies on the forms.

Divert river through dam

Three 10 x 12-foot rectangular conduits were built into two monoliths of the dam to carry the flow of the river during the diversion period. On the upstream side, in line with these conduits, the contractor constructed a bridge having concrete piers, steel girder spans, and a timber deck. This bridge bypassed the section of cofferdam which was to be breached and provided a roadway across the site for men and equipment working on the right-bank section of the dam.

When the monoliths inside the initial cofferdam were well above water level, the cofferdam was breached to permit the river to flow through the diversion conduits, and a diversion dike was thrown across the original channel of the river.

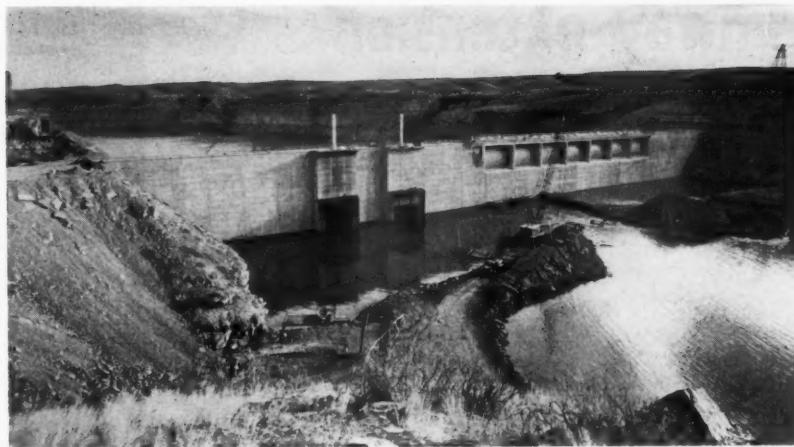
The gates, which were later used to close the diversion tunnels, were fitted with rubber seals to insure a tight fit. Then, after the dam was completed, the gates were closed and the tunnels unwatered, backfilled with concrete, and grouted. With the gates closed, the flow of the river passes through the powerhouse penstocks and the seven tainter gates located atop the spillway section of the dam.

A glance at the construction schedule gives an idea of the high rate of speed on the work.

The entire job was substantially completed in 17 months, and less

Model 300
cks on the
e dam.

A Bucyrus-Erie 54-B crane completes removal of the work bridge on the upstream side of the dam. Just two weeks later, the lake was building up behind the dam and water was flowing through the two open tainter gates, right.



than a year after the placement of the first concrete. This schedule is especially remarkable considering the rugged winter weather in this northwestern Montana area.

Personnel

Glen M. Jones is construction manager for The Montana Power Co. Howard Woody was resident engineer on the Cochrane project.

Project manager for the Winston-Green joint venture was Larry P. Sowles. The supervisory staff included project superintendent Ted Torgerson, project engineer T. A. "Bud" Leines, concrete superintendents Guy Strother and Lloyd Sprague, and carpenter superintendents George Torgerson and Herb Measley. The job operated two or three 8-hour shifts, six or seven days a week, as required, to meet the schedule. **THE END**

Mining, metallurgical industries in the 1500's

"Agricola on Metals", by Bern Dibner, discusses the mining and metallurgical industries in the 16th century, as recorded by Georgius Agricola in his historic work "De Re Metallica". Former President Herbert C. Hoover and Mrs. Hoover translated the original Latin work. "Agricola on Metals" reveals that the original author and his translators conveyed a message of timeless appeal.

The main section of Dibner's book deals with the 12 books that comprise the "De Re Metallica". Topics covered are: mining as an industry; ancient mines; mineral veins and seams; determining mine boundaries; the principles of mining; and mining tools and equipment. The remaining chapters report on assaying ores and metals; preparing ores for roasting, crushing, and washing; ores and furnaces for smelting copper, iron, and mercury; recovery of precious metals from base metals; recovery of silver from copper by liquation; and salts, solvents, precipitates, bitumen, and glass.

Priced at \$2.50, the well illustrated book may be purchased from the Burndy Library, Norwalk, Conn.

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MAY, 1958



Shop testing 8,000 lb. capacity aggregate Weigh Hopper. Double acting quadrant gates actuated by air cylinders.

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Check Simplicity's quality features against those of any mixer: $\frac{3}{4}$ " thick manganese steel liner plates • $5\frac{1}{2}$ " square high carbon steel mixer shafts • $4\frac{1}{16}$ " double row roller bearings • Cut tooth steel spur gears • Cast steel mixer paddles with Meehanite 4-way reversible tips • Jacketed for hot oil or 150 lb. psi steam.

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For more facts, use Request Card at page 18 and circle No. 234

Scraper fleet leads off work on runway extension



In the overrun area for the new runway extension, three Allis-Chalmers HD-21's, assist Cat DW21 scrapers loading borrow material for the road and rail line that are being relocated.

A powerful scraper fleet, assisted by draglines, is being used to move more than 455,000 cubic yards of material for a widening job on the 7,000-foot-long primary runway at Charleston Air Force Base in South Carolina.

The existing runway, only 150 feet wide, is being lengthened by 2,000 feet, and an additional 1,000-foot overrun is being widened to 200 feet to accommodate the MATS and jet squadrons located at the base. This project is being done under the supervision of the Charleston District of the U. S. Army Corps of Engineers, and Robert E. Lee & Co., Manning, S. C., holds the \$1,761,000 contract.

Relocate road and railbed

Before work began on the runway extension, an existing perimeter road had to be relocated for a stretch of about three miles so that it ran around the extension project and still left room for any future expansion. This new 24-foot roadway, swung around the northern end of the runway extension through virgin swampland, consists mostly of borrow material.

While this work was being done, a 1½-mile stretch of railroad track was relocated along the new road without any interruption of service. Center lines of the roadway and railbed are almost parallel and about 50 feet apart. Both the relocation jobs were done by two Allis-Chalmers 360 scrapers, one Euclid 18-yard scraper, five Caterpillar DW21 scrapers, and two International 2T75 scrapers. This fleet was push-loaded by two Allis-Chalmers HD-21 pushers and an Allis-Chalmers HD-21 tractor-dozers. As the roadway work progressed, the same rigs were used to build up the railroad base.

The borrow material for the road and rail line was obtained from the extreme northern end of the proposed overrun area, a few thousand feet from the end of the existing roadway. Some of the contractor's equip-



Since the road around the runway extension will be only 24 feet wide, this DW21 cannot turn on the fill but must back up to a point where dry ground is available for maneuvering.

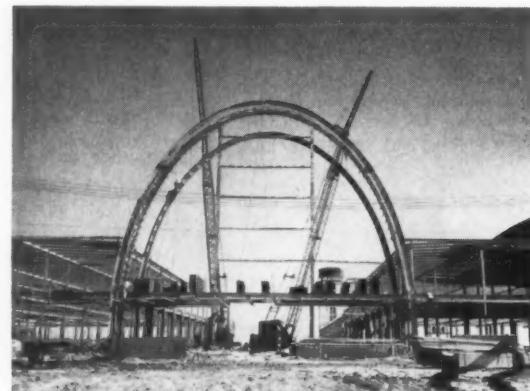
B. & G. Crane Service

Makes The "Big Lift" a

C.I.T. is On the Job, too

It took finger-tip crane control to put the 13 arches in place for the new \$6,000,000 Moisant International Airport on the outskirts of New Orleans, Louisiana. Each 9-ton arch had to be held in place while skilled steel workers connected it to the structural steel of the Terminal Building.

B. & G. Crane Service, Inc. handled all the steel erection. This was the biggest job yet for the expanding firm owned by Mr. X. J. Grilletta and Mr. L. Bronzo. Three P. & H. cranes were kept busy continuously on the project. All of them were bought as part of a well-planned expansion schedule based on a financing program set up by C.I.T. Corporation. This same financing program had previously put a number of cranes and other profit-making equipment to work for B. & G.



Here are two of the three P. & H. cranes used on the job. All told, one 35-ton truck crane, one 20-ton crawler crane and one 12½-ton truck crane were used along with 6 welding machines.

How Job-Engineered Finance Plans Can Help You

Payd Plan equipment financing terms to 6 years with payment schedules related to depreciation, or equal monthly payments over 36 months, or skip-payment plans where needed . . . these are just a few of the helpful financing tools offered to you by C.I.T.

In addition to equipment purchase financing, C.I.T. can help you improve your bid and bond capacity, meet current operating expense or other business needs by arranging capital loans. C.I.T. representatives know how to lay out "job-engineered" finance plans, carefully devised to fit your needs. Why not call or write? No obligation, of course.



Vice President Louis Bronzo, C.I.T. representative Ray H. Durham and President X. J. Grilletta get together on the details of the continuing equipment finance program.

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With scrapers off the fill, a Caterpillar D9 tractor-dozer goes to work to push the borrow material forward through the swampy areas.



Muck excavated from the alignment of the new roadway is cast to one side by a Koehring 605 dragline. Material is being stockpiled at the base and will be used later as a 4-inch topsoil covering for unpaved areas.

lift"at Moisant

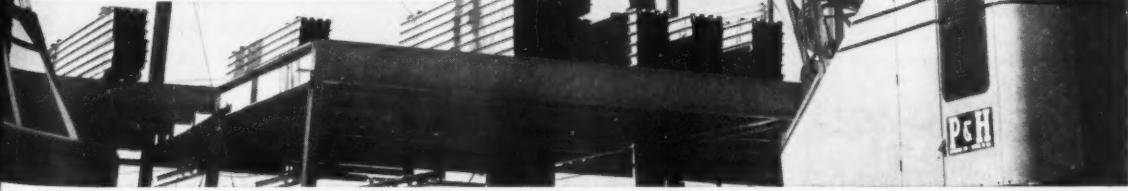
ce Plans

ns to 6 years depreciation, months, or . . . these are tools offered to

the financing and bond nse or other loans. C.I.T. "job-engi- nised to fit obligation.



Two B. & G. steel workers prepare to connect the arches as the big cranes hold the heavy steel in place. Here's where top notch equipment and experienced manpower pay off.



AN EQUIPMENT FINANCING

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IN CANADA: CANADIAN ACCEPTANCE CORPORATION LIMITED



For more facts, use Request Card at page 18 and circle No. 235

MAY, 1958

ment scattered throughout the project—an Allis-Chalmers HD-21, two Caterpillar D8's, an International TD-24, and four Cat No. 12 motor graders—were used to push out the borrow material for both fills.

All waste material excavated from the roadway and railroad alignments, and from the outfall drainage ditch extension that will carry the airfield runoff to a natural drainage source, was stockpiled on the base as 4-inch topsoil covering. This is required on all non-pavement areas. Excavation was handled by a Koehring 605 crane with a 2½-yard dragline bucket and a Bucyrus-Erie 22-B crane with a 1-yard dragline bucket. These loaded the material into four Euclid 18-yard bottom-dumps that hauled to the stockpiles.

Extension construction

The 2,000-foot-long runway extension consists of two 1,000-foot-long sections of different construction. The inside 1,000 feet, or the section immediately north of the existing runway, will have a 10-inch stabilized subbase course topped with an 8-inch stabilized aggregate base course. This will be covered by 4 inches of asphaltic concrete in a 2½-inch binder course and a 1½-inch wearing surface.

The subbase, of local sand and Palmetto No. 9 (3/8-inch-maximum) stone, has to attain a minimum CBR value of 35, while the stabilized aggregate base course calls for a CBR of 80. Both courses must be compacted to a density of 100 per cent modified Proctor.

Both courses of the inner 1,000-foot section will have to be proof-rolled with a rubber-tire roller equipped with four or more tires, each carrying a minimum of 30,000 pounds and inflated to a minimum of 150 psi. The contractor plans to use a Ferguson 50-ton pneumatic roller, loaded to 60 tons, pulled by a Cat DW21 or a Cat D8 tractor.

The northern, or outer, 1,000-foot-long extension section will consist of a concrete pavement on a 6-inch stabilized base course compacted to a density of 95 per cent of modified Proctor. The northern half, or 500 feet, of this outer runway extension section will have a 17-inch-thick un-



Cat DW21 scrapers pick up 23 yards of borrow each, with an assist from two Allis-Chalmers HD-21 pushers.



A heaped Allis-Chalmers 360 scraper heads for the new perimeter road. In all, ten scrapers were used to handle construction of the 1½ miles of relocated railroad and road.

(Continued from preceding page)

reinforced concrete slab running 50 feet on either side of the center line. This 200-foot-wide section will consist of 15-inch-thick concrete slabs 50 feet in width.

The remaining 500 feet will consist of a uniform 15-inch unreinforced concrete slab, 200 feet wide, which runs into the asphaltic-concrete extension. To widen the existing runway, the contractor will build 25-foot-wide strips along the runway edges. These will consist of an asphaltic-concrete surface over a base similar to the one used on the inner 1,000-foot asphalt extension.

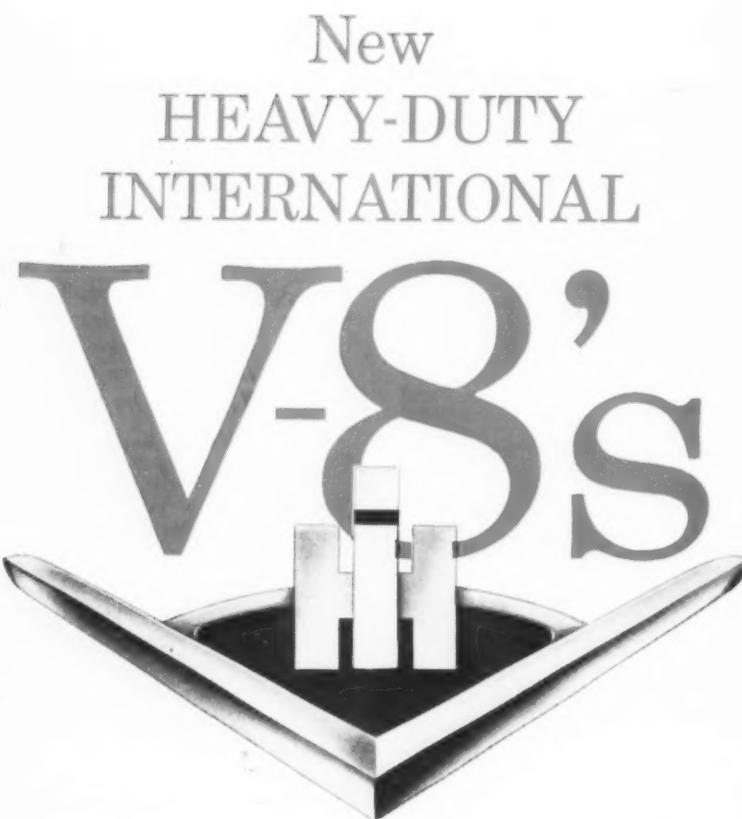
North of the 2,000-foot extension, a 1,000-foot runway overrun will be built and will have a surface-treated asphalt surface. This overrun will consist of a 12-inch stabilized aggregate base course, compacted to a density of 100 per cent of modified Proctor, treated with a double bituminous priming. Construction of the overrun with such heavy-duty base-course requirements will enable it to be used as a permanent base course for any future runway extensions.

During the grading of the overrun area, the contractor ran into a perched water table sitting on a 12 to 18-inch impervious strata 4 to 5 feet below the ground surface. Instead of excavating, the contractor compacted the area with pneumatic rollers to get rid of the water. Compaction caused the water to surface and drain off to side ditches by capillary action.

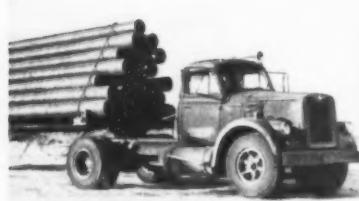
The aggregate and sand for the base courses is being hauled to the airfield by dump trucks. The material is dumped in windrows as it is discharged through a hopper towed by a truck. A Wood mixer, drawn by a Caterpillar D8 tractor, runs over windrow and mixes the sand, stone, and water. After being mixed, the material is spread in maximum lifts of 5 inches before being compacted by a Ferguson 50-ton roller.

Capt. D. K. Sheppard, the project engineer for the Charleston District, is in charge of construction at Charleston Air Force Base. James Mason is the chief inspector on the project for the Corps of Engineers. R. B. Hawthorne is project manager; Hack Glasby, the assistant project manager; and W. H. Wilkie, the grading superintendent, for Robert E. Lee. Col. Parker O. Stuart is the District Engineer of the Charleston District, U. S. Army Corps of Engineers.

THE END



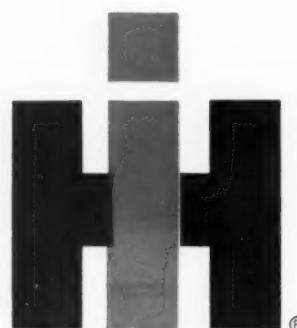
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Motor Trucks • Crawler Tractors
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INTERNATIONAL TRUCKS cost least to own!

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Housing for workmen: an important first job on isolated projects



Housing and other facilities for 1,600 men are provided in this construction town at Rapide Beaumont, Province of Quebec. The men will be working on a hydroelectric power project for the Shawinigan Water & Power Co.

When a big project is about to begin in an isolated area, one job takes precedence: providing housing, mess halls, medical facilities, and offices for the men who are doing the construction.

In many cases, this is a simple job. But contractors with big labor forces might follow the lead of Shawinigan Water & Power Co., which built facilities for the 1,600 men working on a hydroelectric power project at Rapide Beaumont, on the banks of the St. Maurice River, in the Province of Quebec, Canada.

Housing units

Shawinigan erected 10 H-shaped bunkhouses, assembled from Armco steel buildings. Each bunkhouse consists of two buildings—each 24 feet wide, 128 feet long, and 8 feet high—connected by a 28-foot-square center building. The two long buildings each contain 12 bedrooms that accommodate four men per room. The center section is used for washroom and shower facilities.

Married men and their families are quartered in a building that has 6 three-room apartments measuring 28 feet wide, 192 feet long, and 8 feet high. Six buildings provide two-bedroom apartments. These buildings are 24 feet wide and 96 feet long.

There is also a staff house with two single and four double bedrooms, plus living and dining rooms. This unit measures 28 feet wide, 80 feet long, and 10 feet high.

Mess hall, hospital

The mess hall is composed of three buildings—each 40 feet wide, 140 feet long, and 10 feet high—connected by a 10 x 80-foot section. The two outside buildings are the eating areas; the center building is for the kitchen and food storage.

With many people living on the construction site, it was important to establish a camp hospital. A 24 x 58-foot building houses the operating room, X-ray facilities, and other necessary equipment for a field hospital. A doctor and nurse are in full-time attendance.

The administration offices are housed in the same type of steel building. This is a multiple unit made up of a 28 x 108-foot building con-

(Continued on page 49)

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L LOGGING
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built with exclusive
NYGEN cord
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designed to provide
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You'll get every job done faster and for less when you equip your units with the all-new wide-base General LCM tire. Built with General's exclusive stronger-than-steel Nygen cord, the LCM rolls over even the toughest job hazards... provides greater traction and flotation than ever before. Find out now how this big wide-base General LCM with Nygen can boost your job profits!

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Only a **PAYLOADER®** can do them all!

The rubber-tire tractor-shovel has won its wide popularity through exceptional versatility and flexibility. This natural usefulness and work-ability is being broadened by the development of new, quickly-interchangeable attachments.

Because "PAYLOADER" is the pioneer and leading line of rubber-tire tractor-shovels you can rightly expect that tested and proven attachments will first be available on the "PAYLOADER" line.

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Send "PAYLOADER" 4-wheel-drive information as follows:

- Free attachment booklet
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The main office building, typical of the Armco steel structures at the site, is composed of three different-sized units.

(Continued from page 47)

ected by a 40-foot-square section to a 28 x 120-foot building. Other units on the site include a concrete laboratory, steam plant, two stores buildings, and an electricians' and pipefitters' shop.

All buildings were supplied and erected by Armco Drainage & Metal Products of Canada, Ltd., on foundations prepared by Shawinigan Water & Power's subsidiary, Shawinigan Engineering Co., Ltd.

Other project phases

Constructing the camp site was only one of the two prerequisites for the big project. The second was a 9-mile relocation of the Canadian National Railway from the west to the east bank of the St. Maurice River. The principal work for that job was constructing a bridge across the river. Because of the difficult terrain, the bridge was built at an angle to the river center line.

Still under construction are a dam and the generating units of the power plant. When the entire project is completed, it will feature a semi-outdoor type of powerhouse containing six generating units that will supply nearly 250,000 kw of electric power for Quebec.

THE END

Clark to manufacture equipment in Brazil

The Clark Equipment Co., Buchanan, Mich., through its wholly-owned subsidiary, Clark Equipment International, C. A., has joined with the Brazilian firm of Maquinas Piratininga to form a new company which will manufacture and distribute Clark's line of material-handling and construction machinery in Brazil.

The new firm, Equipamentos Clark Piratininga, S. A., Sao Paulo, is owned equally by Clark Equipment International and Maquinas Piratininga. The material-handling equipment will be produced there this year; the Michigan line is scheduled for manufacture in 1959.

Dr. Jorge de Rezende is president of the new firm.

Allison Division names assistant sales manager

John K. Knighton has been appointed assistant sales manager of transmissions operations of the Allison Division, General Motors Corp., Indianapolis, Ind. He will direct a staff of sales engineers in the selling program on the Allison fully-automatic transmission for trucks.

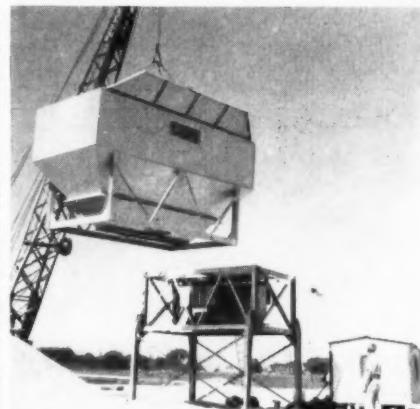
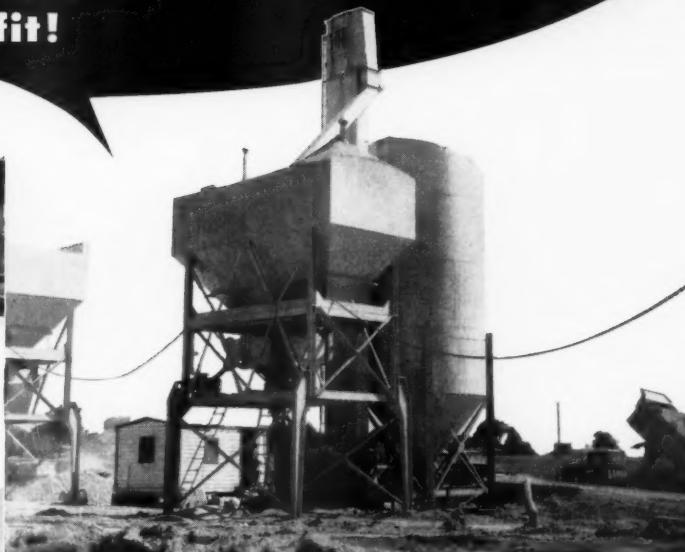
"If you don't mind I'd like to go back to the office and look over those figures again."



If you moved your **ROADBUILDERS** **PLANT** only ONCE . . . the **BUTLER TX-4** would still pay you a Bigger Profit!



Bin section is complete, ships and erects with bracing members in one piece. Rests on top of batchers . . . Batcher section also has its own permanent bracing for transport and erection as a unit. Moreover all piping and wiring are in-place. Quick connectors for air and electricity make hook-up a matter of minutes.



Support columns are hinged to batcher section, swing into place as batchers are raised . . . Elevator ships in two pieces with chain and buckets installed. Cement overflow bin ships complete with support columns attached.

WORLD'S RECORDS IN BATCHING SPEEDS

Production has actually been maintained at a 15 second cycle with the TX-4. But 20 seconds is more practical for figuring costs if you can spot your trucks at such a rate. Depending on the number of batchers in your TX-4 plant this means 6, 9 or 12 batches every minute. That's a world's record in production—and in profits.

Send for this Bulletin describing the TX-4 in great detail. The whole story is there. You should have it for the BUTLER TX-4 obsoletes every other plant now in existence.

. . . And the oftener you move
the more you'll appreciate the
unparalleled portability of the TX-4

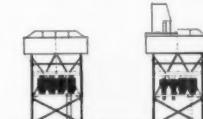
The BUTLER TX-4 Roadbuilders Plant is dismantled and erected in such a small fraction of the time required by other set-ups that you'll pocket an extra profit by the saving.

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Let's assume that you are batching for one or two dual drum pavers. You start with the basic plant—two TX-4 bins, one compartmented for cement and sand, the other for two sizes of stone.

For 3 pavers simply add two more bins with batchers as shown.

And for four dual drum pavers, just add a batcher to each of the four bins.



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Widening, hot-mix resurfacing finds biggest problem is weather

Asphaltic concrete for the job is produced by this Standard plant. The plant, rated at 120 tons per hour, actually operated at 100 tons per hour because rains kept the stockpiles wet.



NEW DESIGN...reduces dead weight as much as 1000 pounds...provides higher dumping angle...utilizes twin hoists for greater stability. Write for brochure.

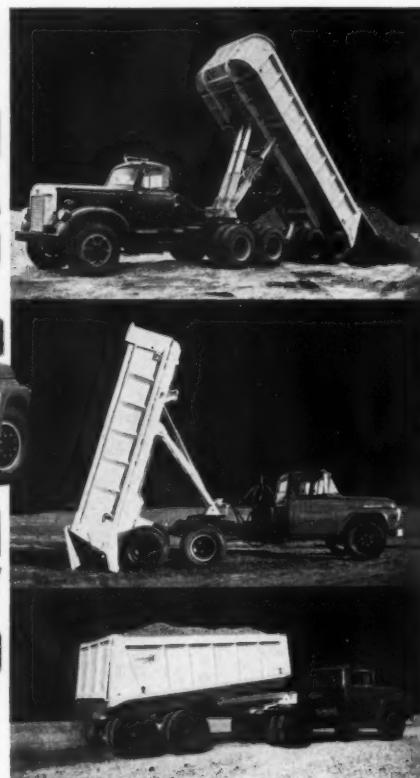
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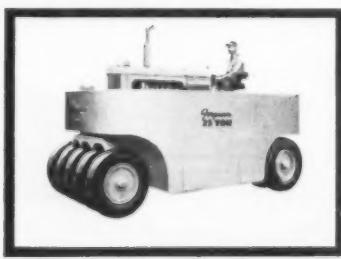


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"I'll take it", said Pete Marcelli as he picked up the phone in the construction shack. He recognized the voice of Cecil Driver, the job superintendent. He was calling from the home office about 40 miles away.

"Are you guys runnin' down there?"

"Sure we're runnin'", said Pete. "Runnin' out of the rain."

"What do you mean? It's not raining here", said the voice from the home office.

Pete listened to the steady beat of rain on the tin roof of the construction shack. He grinned as he picked up the phone and held it close to the roof.

"Does that sound like sunshine?"

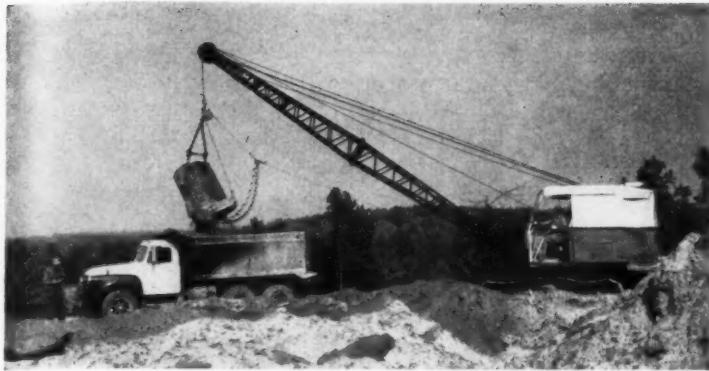
"Sounds like money going down the drain to me. If it doesn't stop raining one of these days; we're going to have to start working Saturdays, Sundays, and the Fourth of July to get this job done."

As a matter of fact, it didn't stop raining for very long during the widening and resurfacing job on U. S. 67 about 30 miles southwest of Little Rock, Ark. During one period, it rained at least once during the day for 20 days in a row. Southeast Construction Co., Inc., of Pine Bluff, Ark., which had the contract for a 6-mile stretch, was generally able to keep going between the showers. But when the skies dumped as much as 2½ inches of water on the job, there was not much to do but play poker.

Traffic during the widening and resurfacing of the busy highway was also a problem. To slow down motorists and guide them around operating equipment, Southeast paid the wages and expenses of a highway patrolman. The patrolman, who was on duty during all working hours, contributed to the safety of both the motorists and the construction workers.

The \$335,942 contract, held by Southeast, is part of a larger plan by the State Highway Commission to improve the narrow concrete road between Little Rock and Texarkana. The improved road will carry traffic between these cities until completion of the expressway, which is planned generally west of this route. It is expected that the asphaltic-concrete widening and resurfacing will increase the life of the old roadway.

CONTRACTORS AND ENGINEERS



Select material used for the 3-foot widening strips is loaded into an International truck with a Heil 10-yard hydraulic dump unit by a Lima Paymaster with a 1-yard bucket.



A GMC truck dumps 8 tons of asphalt into the B-G finisher, which operates with a crew of four. In addition to the operator, there is a screwman, raker, and the dumper, who dumps the trucks and collects the weight tickets.

another 10 to 15 years.

The old roadway, which was built in 1923, was in poor condition. The 7 to 9-inch-thick concrete contained large cracks and had settled in many places. The plans called for a 3-foot widening strip, built up of 9 inches of asphaltic concrete, on either side of the 18-foot-wide pavement. The entire roadway was then to be topped with a 2 to 4-inch leveling course and a 1½-inch surface course to give the improved road two 12-foot lanes, bordered on either side by 8-foot gravel shoulders.

Bordering Southeast Construction Co.'s contract on the south was a 10.4-mile contract for similar work. The rains did not spare Reynolds & Williams, Little Rock contractors, as they worked on this stretch.

Rain slows dirt work

The dirtwork on Southeast's contract involved moving about 68,000 cubic yards of unclassified and 24,000 cubic yards of select excavation. Southeast subcontracted this work to

(Continued on page 54)

GOT THIS? (Predraining Problem)



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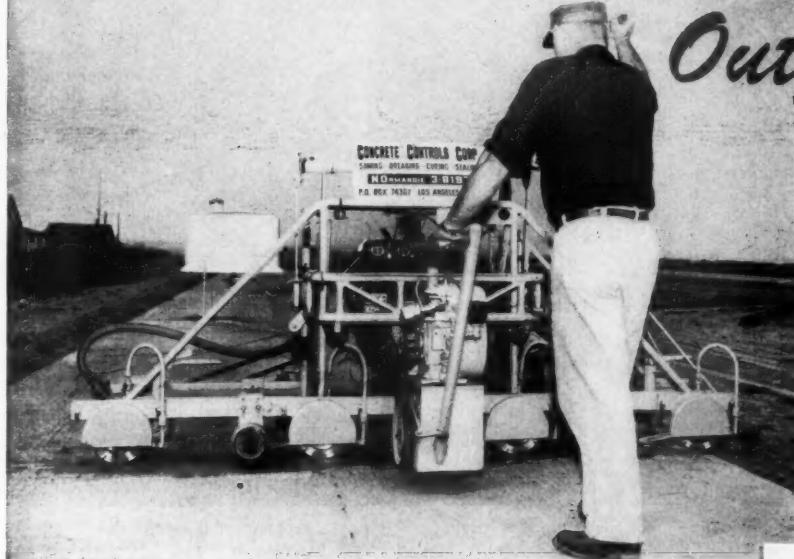
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A DTA® exclusive...Tri-metric Process has made possible the producing of superior Diamond Cutting Blades...the one method that accurately fuses the fine quality diamond grit with the proper bond grading, exact concentration and depth of diamond section. You always get more from a DTA® Diamond Cutting Blade.

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Dear Sirs:
We like to compliment suppliers as well as criticism them on their products. Therefore, we feel congratulations are in order to Diamond Tool Associates for a product well made.

As you know, we are one of the largest users of Diamond Cutting Tools in the construction industry. We have used competitive type blades. After extensive tests, we have found that your product consistently outperforms all others tried, in speed of cut and cost per foot.

Again congratulations on your fine product and service rendered to the construction industry.

Respectfully yours,
CONCRETE MACHINERY LTD.
H. F. Felt, General Manager

6 big reasons why
DTA* is your best buy

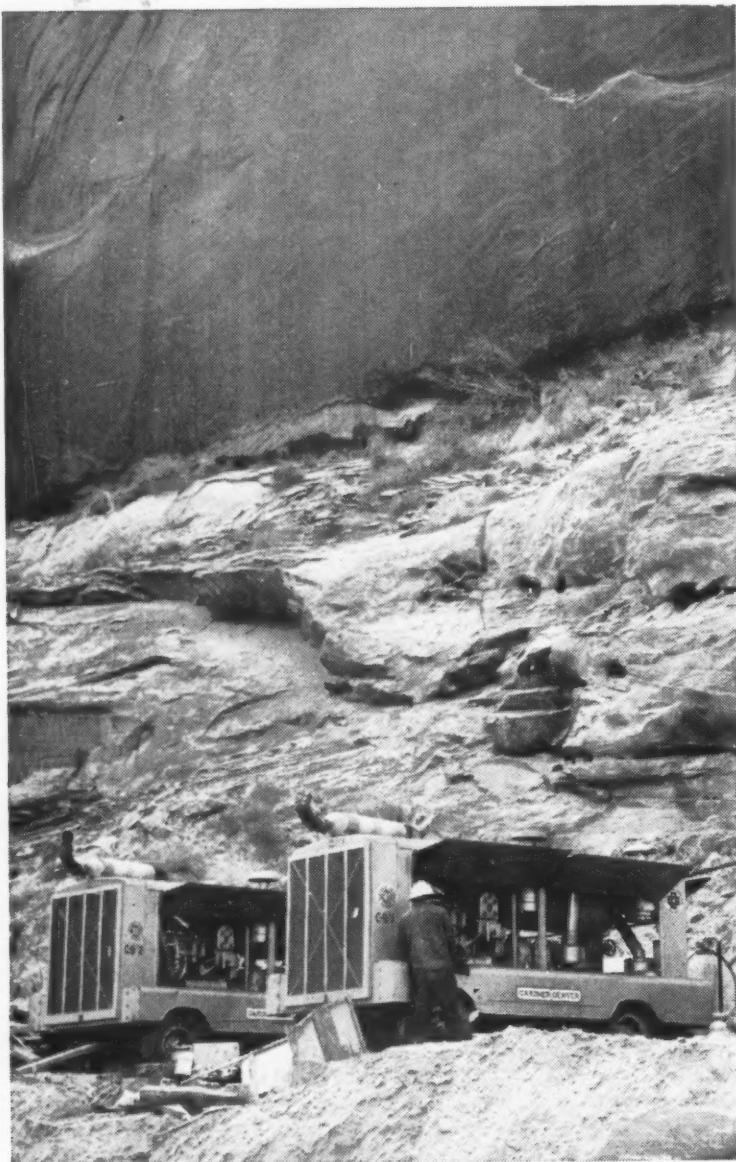
1. Outstanding research and development.
2. Precise control of manufacturing process.
3. Highest quality diamond BOART.
4. The best in metal bondings.
5. Top quality steel centers.
6. Complete sales and field service by experienced personnel selected for their knowledge of your cutting problems.

*DIAMOND TOOL ASSOCIATES

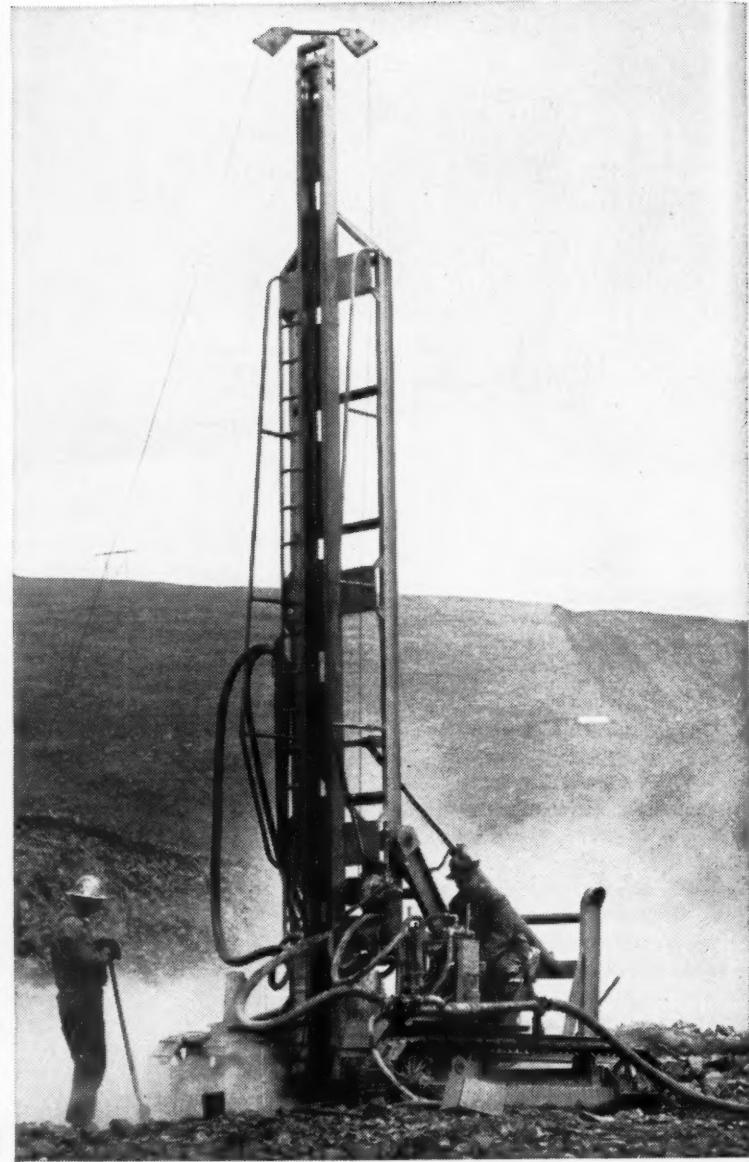


P.O. Box 85 • 940 E. El Segundo Blvd. • Hawthorne, Calif.

For more facts, use Request Card at page 18 and circle No. 243



Gardner-Denver RP900 rotary portables. G-D rotaries are available in five sizes, from 125 to 900 cfm.



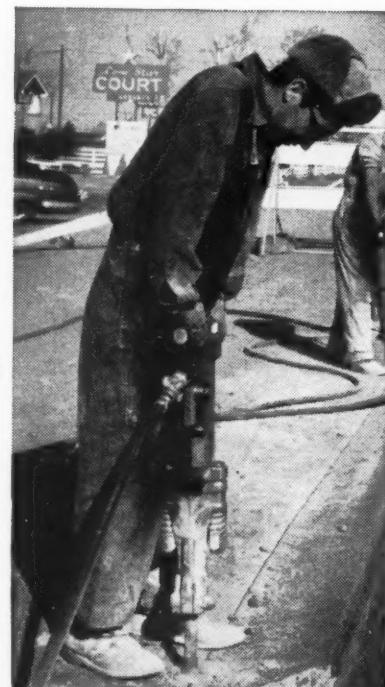
Here's a hard-hitting percussion drill with a 5½" hammer—the Gardner-Denver DH143 crawler-mounted drilling rig.

Quality equipment costs less to use . . .



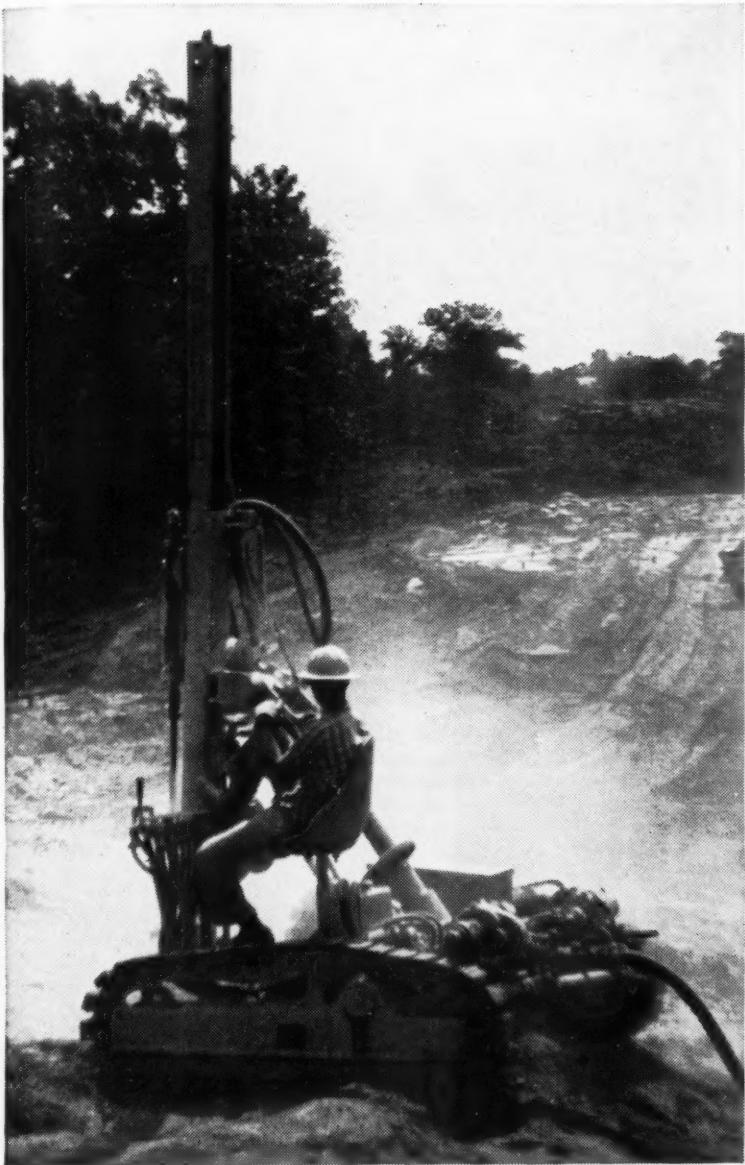
Gardner-Denver sinker drills come in a complete range of sizes. A size and model for any type of rock.

Break it up fast with a lightweight, heavy-duty Gardner-Denver paving breaker. Hard-hitting models available in three weight groups.

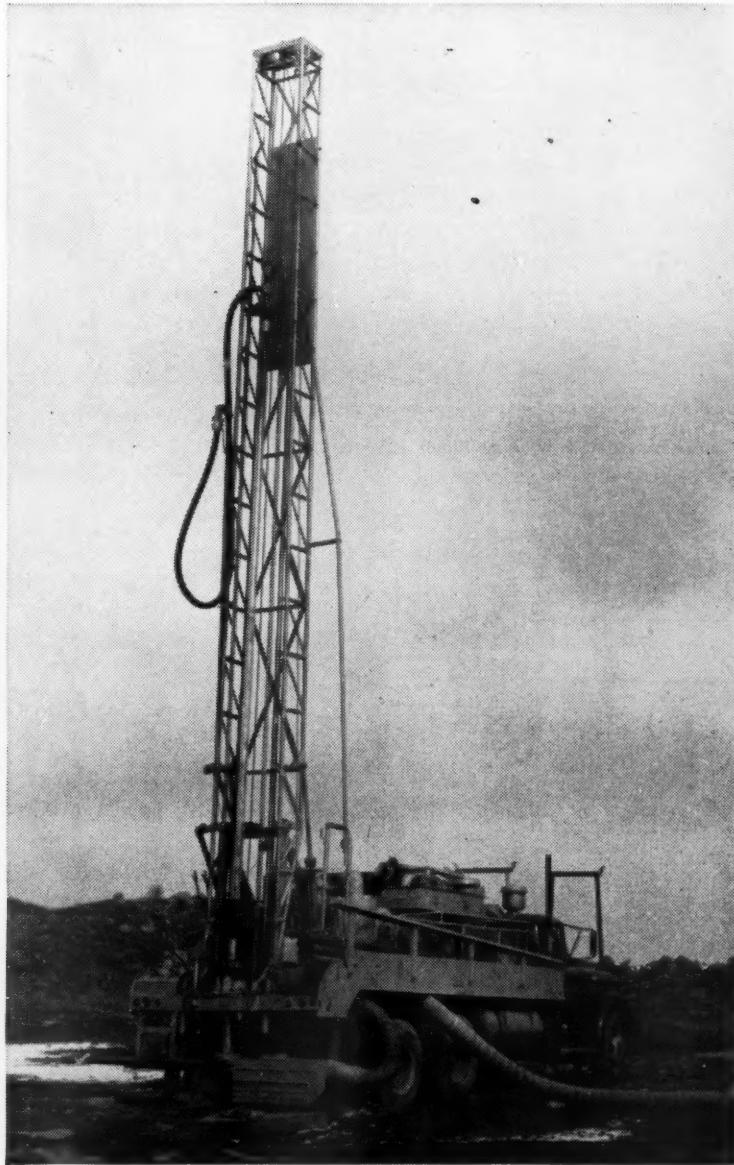


Other quality equipment in the Gardner-Denver line includes:

"Air Trac"®
Drifter Drills
Air Feed Leg Drills
Concrete Vibrators
Clay Spaders
Trench Diggers
Sheeting Drivers
Bit Grinders
Tampers
Air Hoists
Sump Pumps
Carburized Drill Steel



This deluxe model "Air Trac"® provides complete power positioning for all vertical, horizontal and flat lifter holes.



Drill big bore hole in a hurry with the Gardner-Denver "Mole-Dril"*. It follows the bit down the hole, delivers more foot-pounds of energy to the bit than any other drill of its size.

*T.M.

that's why heavy-rock contractors go **GARDNER-DENVER**

When it comes to moving mountains of rock, contractors rely on Gardner-Denver. These men know how Gardner-Denver equipment performs on the rough jobs. They know it's

built to last longer . . . stands the gaff with minimum maintenance . . . gets the job finished faster at lowest cost. Drop in and see your nearest Gardner-Denver distributor soon.



ENGINEERING FORESIGHT—PROVED ON THE JOB
IN GENERAL INDUSTRY, CONSTRUCTION, PETROLEUM AND MINING

GARDNER - DENVER

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Avenue, Toronto 16, Ontario



One of the two Barber-Greene finishers on the job puts down the 2 to 4-inch leveling course in a 12-foot-wide strip over half the old pavement and the 3-foot widening strip.



As the leveling course goes down, it is rolled by a Tampo 10-ton roller, foreground, and a Galion 10-ton tandem.

**Barnes Engine-Driven
Self-Priming Pump**

**Move 18
tankloads
of water
an hour!**

It's faster with BARNES Self-Priming Pumps!

With capacities up to 90,000 g.p.h. readily available, you will have no trouble choosing the right pump from the Barnes Blue Ribbon Quality line!

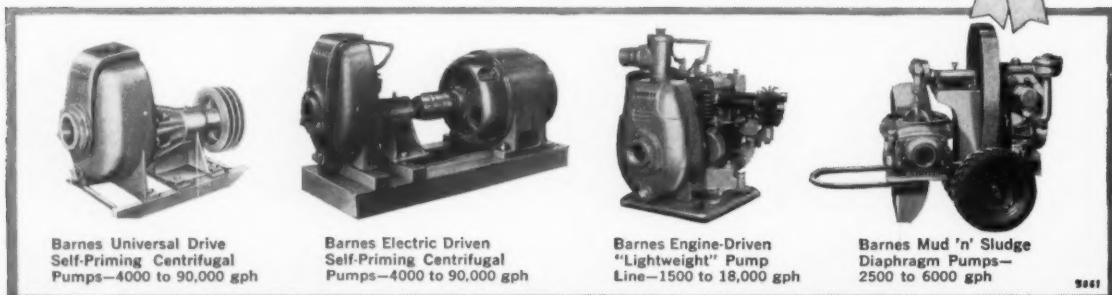
You'll move more water *faster* on excavating, mining and general construction jobs. You'll get the advantage of Barnes exclusive self-priming principle for centrifugal pumps. It primes and *re-primes* without fail—even with as little as $\frac{1}{3}$ water level in the pumps . . . during intermittent service.

Barnes Portable diaphragm pumps handle semi-

solid seepage swiftly, too. Get a *free* copy of our new Construction Pump Selector #238 for ready reference. Ask your Barnes distributor or write to us. Address Dept. B-58.



OTHER BLUE RIBBON PUMPS FOR ANY POWER SOURCE:



For more facts, use Request Card at page 18 and circle No. 244

(Continued from page 51)

Mode & McCracken of Conway, Ark. The bulk of the dirt was moved with two Caterpillar DW15 scrapers and two LeTourneau-Westinghouse 12-yard scrapers pulled by Cat D8 tractors. Caterpillar D6 and D8 tractors with dozers assisted in the dirt moving.

At times the dirt alongside the road was too wet to load with scrapers. To get these sections down to grade, the contractor used a P&H 255A crane with a Hendrix 1-yard bucket. The dragline loaded into Cat DW15's which hauled the material to a waste area.

Working with one end of its blade against the old concrete, a Cat No. 12 motor grader made about a 12-inch cut for the shoulders. Select material was then hauled in to fill the lower half of the cut. Shoulder gravel was placed on the top 6 inches. Compaction of the select material was done mainly with a Galion tandem roller and a Terrapac vibratory roller, while a Tampo wobble-wheel rolled the gravel.

To cut the trench for the 3-foot widening strip, the contractor used a Domor attachment on a Caterpillar No. 12 motor grader. After compacting 3 inches of select material at the bottom of the trench, the contractor was ready to place the 9 inches of asphaltic concrete for the widened section. Apsco and Blaw-Knox spreaders placed the material in 3-inch lifts. Galion trench rollers compacted each lift.

Surfacing

Before the 2 to 4-inch leveling course was laid, a tack-coat of RC-O was applied to the surface of the roadway. A light fog coat was used to bond the leveling course to the 1½-inch surface course.

The laydown operation was spearheaded by one of the two Barber-Greene finishers on the job. A fleet of 14 dump trucks kept the finisher supplied with hot-mix as the 12-foot-wide strip was put down. Working behind the Barber-Greene was a Galion 10-ton tandem roller. A Tampo tandem roller brought the asphalt to its final density of 97 per cent. The laydown crew often worked

POWER UP...

with **DENISON** hydraulic equipment...

WAGNER did!



2000 PSI HYDRAULIC POWER

...for Wagner's "Pow'r-Ho" Model 90 backhoe is supplied by a single Denison TMC Vane Pump that pays off in harder, faster digging cycles.

• Why? Because dependable 2000 psi Denison hydraulic power keeps Wagner's rugged "Pow'r-Ho" (Model 90) backhoe digging in harder... with faster time cycles that mean *extra user profit*. Whatever the job—digging gas lines... foundations... or drainage ditches—the "Pow'r-Ho" can bite in up to 12 feet deep at 50% greater speed with hard-working hydraulic power by Denison.

A single 2000 psi Denison TMC Vane Pump gives the "Pow'r-Ho" its punch. Seven hydraulic cylinders—actuated by the Vane Pump—power the bucket... lift and swing the boom... crowd the dipperstick... stabilize the unit.

It's a fast, smooth, efficient operation because Wagner's rugged hydraulic system and Denison's 2000 psi Vane Pump perform with power to spare that does toughest jobs faster, more efficiently.

It's the kind of job your Denison Hydraulic Specialist can help you do now. Ask him more about how Denison 2000 psi Pumps can *improve performance of your equipment*.

DESIGNERS — ENGINEERS!

Write for your copy of Bulletins 200 and 201 "How to Design More Efficient Hydraulic Power Into Mobile Machinery" and "Balanced Vane 2000 psi Hydraulic Pumps."



DENISON ENGINEERING DIVISION
American Brake Shoe Co.
1262 Dublin Road • Columbus 16, Ohio

DENISON
HydroOILics

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MAY, 1958

For more facts, use Request Card at page 18 and circle No. 245

55

Penna. 66 gets a major face lifting ... Gulf helps Myers do it



Marion Hoke, Superintendent of Ralph Myers Contracting Corporation, and H. H. Hossler of Gulf Oil Corporation on the job. Gulf products and service will help Myers meet the August 1958 deadline on this 4-mile project in Pennsylvania.



The rolling hills of western Pennsylvania are beginning to take a new appearance under the Federal Highway Act. Especially around Mamont, Pa., where Ralph Myers Contracting Corporation of Pittsburgh is engaged on Federal Project F322(5). This project is 4 miles long, and involves the relocation of Route 66—with much work on connecting routes 80 and 366, including the building of an overhead bridge over Route 80. More than 514,000 cubic yards of Class I excavation is involved in the project.

Ralph Myers Contracting Corporation is a Gulf customer of long standing. Like hundreds of cost-conscious contractors everywhere, this firm depends on Gulf products and service to keep equipment rolling. They know that Gulf quality lubricants help prevent mechanical delays and—with Gulf fuels—assure top performance from engines. 1500 strategically located Gulf warehouses assure prompt deliveries. And of course Gulf engineering counsel is always available, on the job, at no cost to you.



Next job, why not have Gulf serve you? Meanwhile, get these two helpful booklets: "Gulf and Your Business" and the new "Contractors' Guide." Just call your nearest Gulf office, or use the coupon.



GULF OIL CORPORATION

Dept. DM, Gulf Building, Pittsburgh 30, Pa.

Please send me the free booklet
"Gulf and Your Business"
 Please send me, free, the new
"Contractors' Guide"

Name _____

Title _____

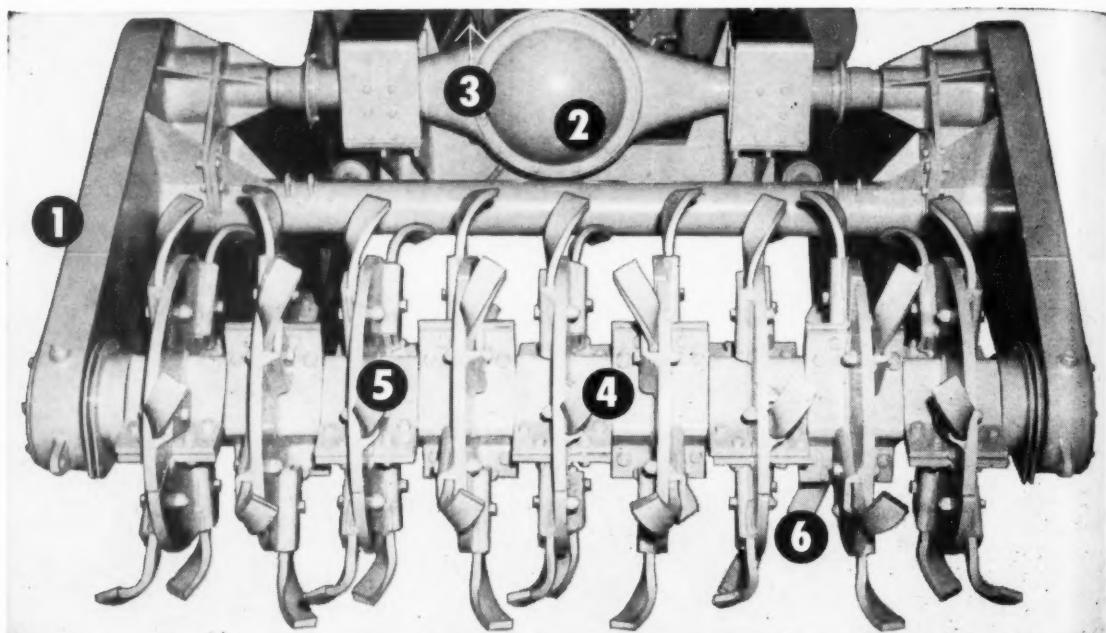
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SP 9280

If you are doing Soil Stabilization work, you know why this design is so important



The BROS Roto-Mixer's performance during the past two construction seasons has been sometimes described as truly amazing. If you

know in-place soil stabilization machines and jobs, as you review the design features below, you'll readily understand why.

CUTS MIXING TIME

1. Because drives are at outside ends of the rotor shaft, even mixing is accomplished in one pass. No need of a second pass to provide uniform mixing.

Full width mixing or any increment up to 7' is easily handled. Split-disk type tool plates are quickly removed for shoulder maintenance or other narrow work.

2. Three-speed transmission and 150 usable HP at 1800 RPM provides a greater range of mixing speed... and mixing control which eliminates "surging" effect.

3. Independent hydraulic control of rotor and hood provide ample space for proper mixing to 12" depths.

Materials are uniformly blended in a smooth, even course.

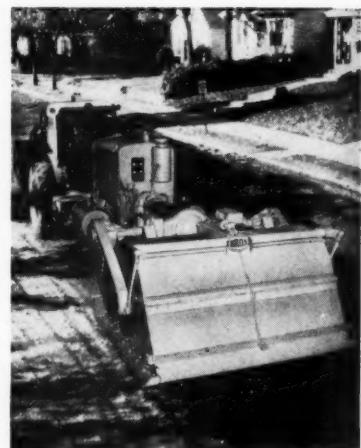
CUTS MAINTENANCE COSTS

4. 6" square solid steel rotor shaft easily withstands shocks and strains of in-place mixing of rocky soils.

5. Split-disk type tool plates are of heavy-duty construction; quickly and easily removed or remounted.

6. Simplified tool holders. Heavy-duty mixing tools are socket mounted, held by one bolt. Replacing worn tools is done in minutes.

You'll be glad to learn of the other important design and construction details of the Roto-Mixer. So see your nearest BROS Distributor for full information and a demonstration. Or write us today.



For more facts, use Request Card at page 18 and circle No. 247

58

ROAD MACHINERY DIVISION

BROS INCORPORATED

(Formerly the WM. BROS BOILER & MFG. CO.)

1057 Tenth Ave. S.E. • Minneapolis 14, Minnesota

CONTRACTORS AND ENGINEERS

between showers. Sometimes, to speed the drying of the pavement, a rotary broom swept off the excess water.

Hot-mix plant

To produce the 30,000 tons of the three types of asphalt, Southeast set up a plant about three miles east of the north end of the job. The big Standard plant, manufactured by Standard Steel Corp., Los Angeles, had a rated capacity of 120 tons per hour. Because the rains kept the stockpiles wet, actual production ran about 100 tons per hour. The plant put out 2-ton batches which were mixed dry for 10 seconds and wet for 49 seconds.

Material was transferred from the stockpiles to the 3-way feeder by a Lima crane. The cold aggregate was then conveyed by elevating buckets to the high end of the single-drum dryer. Hot aggregate was carried up an enclosed bucket elevator to the 4-deck vibrating screen. The different sizes of material dropped from the screen into the collection bins to be measured out for the 2-ton pugmill batch. Controls for the plant were manually operated. A twin-cone dust collector kept the discharge of particles up the stack to a minimum.

Personnel

The project was under the supervision of the Pine Bluff District of the Arkansas Highway Commission. The district engineer is H. R. Lucas and the construction engineer, John S. Harris. Directly concerned with the work on the project was C. H. Paris, resident engineer. For Southeast Construction Co., Cecil Driver was job superintendent.

THE END

A-C buys diesel assets of Micromatic division

The Allis-Chalmers Mfg. Co., Milwaukee, Wis., has bought certain assets of the Micro-Precision Division, Micromatic Hone Corp., at Evanston, Ill. Under the terms of the sale, A-C has acquired all the machinery, equipment, inventories, and patents relating to the division's diesel operation.

Micro-Precision manufactures diesel fuel injection systems under certain patents, and custom aircraft components. All items involved in the purchase have been transferred to the A-C plant in Harvey, Ill.

Micromatic Hone Corp., Detroit, Mich., will retain ownership of the Micro-Precision plant and property.

Davey Compressor names parts, service manager

R. G. Myers has been appointed parts and service manager of the Davey Compressor Co., Kent, Ohio. The former Southwestern district manager will now be in charge of service for Davey rotary and piston-type portable, truck-mounted, and industrial stationary compressors; heavy-duty truck power takeoffs; light and power units; mobile machine shops; and similar units.

Myers will make his headquarters in the firm's home office.

A PREFORMED CONCRETE SLAB, nearly 20 feet long, is swung into place by a Bucyrus-Erie H-5 Hydrocrane for the floor of a new office building in Madison, Wis. Owned by Mid States Concrete Products of South Beloit, Ill., the all-hydraulic, truck-mounted crane made fast work of the job.



"WHEN I NEED PILING I rent it from L.B. Foster Co."

It's faster, it costs me less, and
I'm sure to get the piling when I need it."

You can get real help on your steel-sheet piling jobs if you use the Foster Piling Rental Plan. One call will get you the right piling for any job, in any quantities, and your only cost can be calculated in advance—a low fixed expense directly chargeable to the job. No need to tie up money in inventory.

Count on immediate deliveries anywhere in the country—when you need them. "Faster-From-Foster" service will keep your work on schedule. All standard sections of steel-sheet piling in current use—straight, archweb, Z—plus corners, crosses, tees and fabricated sections are always available from Foster warehouse and field stocks.

Try us for complete contractor service—one call for piling, pipe, highway products, rail.



"FASTER FROM FOSTER" CONTRACTOR SERVICES

Rental Steel-Sheet Piling
Pipe Pile • H-Pile • Rail Pile
Foster Lightweight Piling
Highway Guard Rail
Bridge Flooring & Decking
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To help specify the exact piling you need, send for Foster's Piling Wall Chart #CE-5



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Wyoming is hopeful that Utah building trades unions will be willing to work out with Wyoming unions any questions involving jurisdiction of workers employed by the **Flaming Gorge reclamation project**, according to AFL-CIO state president Paul D. Shafto of Wyoming.

The problem, according to Shafto, is that AFL-CIO jurisdictional lines do not respect state borders, and,

since the Utah unions have some large locals in the area, they are insisting that all workers be cleared through their headquarters. The dam is just over the Wyoming border in the state of Utah.

Shafto points out that there are no large Wyoming locals near the working area, and therefore he hopes and believes that an agreement can be worked out with the Utah AFL-CIO so that Wyoming workers may have an equal opportunity to obtain employment at the project.

Rep. Keith Thomson (R., Wyo.) is concerned with the issue and has sent letters to Shafto and Gulbransen,

president of the Utah State AFL-CIO, urging them to come to a mutual agreement whereby workers from both states can benefit from the employment opportunities offered by the new project. According to Rep. Thomson's letter, the project is scheduled to begin before the end of next month.

Rep. Thomson also urged the Utah AFL-CIO to give the same consideration to Wyoming workers on this project as Arizona gave to Utah workers on the Glen Canyon project. On the latter a similar situation existed, the Arizona unions insisting that employment on the project be cleared through their offices. At that time,

Rep. Thomson supported the Utah workers since he hoped that Utah would then give the same consideration to Wyoming workers on the pending Flaming Gorge project.

Gulbransen is reported to have stated that Utah unions are willing to work out the issue with Wyoming organizations.

New York City's 900 building materials drivers are back on the job, following a two-year settlement along the lines of a contract covering the members of New York City Teamsters' Local 282, who drive the city's sand and gravel trucks.

The two-year agreement, retroactive to July 1, 1957, followed a month-long walkout, and hikes the hourly rate 27½ cents an hour, to \$3.02½ an hour, according to Morris Tarshis of the New York City Department of Labor. In addition, health-welfare and pension contributions, previously based on a percentage of the employers' gross payrolls, is changed to a flat hourly figure.

Contractors will pay 12 cents an hour for health-welfare, up to a maximum of \$4.80 a week, and 11½ cents an hour for pensions, with a \$4.60 weekly ceiling.

The American Federation of Technical Engineers, anticipating a boost in its potential membership from the federal highway construction program, is making **overtures to state highway department technical employees**. The most vigorous organizing activities so far have taken place in Pennsylvania and New Jersey.

In Pennsylvania, the campaign has received an assist from Governor George M. Leader, who issued an executive order declaring that there shall be no discrimination against any state employee because he has "formed, joined, or chosen to be represented by any labor organization or employee organization". Pennsylvania state employees are also the current targets for organizing drives by the Building Service Employees Union and the American Federation of State, County, and Municipal Employees.

AFTE includes in its jurisdiction engineering assistants, surveyors, draftsmen, inspectors, and aides, as well as engineers.

A 30-cent hike in hourly pay, 2½ cents more an hour for health-welfare insurance, a pension plan, and adjustments in travel pay and subsistence were being asked by **Michigan Boilermakers' Local 169** in negotiations with that state's Power House Contractors Association.

Local 169 was the first of the Detroit area unions to make known its 1958 contract demands. Last year's settlement, reached after strike, carried a 27½-cent package raise, bringing the scale for journeymen to \$3.67½. Helpers get \$3.42½ an hour.

An injunction ended the walkout of some 2,000 building tradesmen in



Dump body mounted on Dodge 900 chassis with Custom cab.

Dodge Heavy-Duty Finance Plan is designed to save you money!

Need a new truck, but need to watch your working capital, too? The Dodge retail finance plan for heavy-duty trucks was designed for just that situation. It lets you operate modern, efficient trucks without burdening yourself with excessive finance charges.

Designed with the same understanding of truck problems that has made Dodge *Power Giants* outstanding, the Dodge Heavy-Duty Retail Finance Plan is tailored to your needs. Whether you need one truck or several, you can finance your purchase with a minimum down payment, and with lowest financing cost. Payments can be arranged over an extended period.

What kind of equipment can be financed with this

plan? Any Dodge medium-duty, heavy-duty (400 through 900 models) or four-wheel-drive trucks, plus extra equipment, including bodies mounted on the trucks.

This new plan makes it both easy and economical for you to get *Power-Giant* advantages: exclusive Power-Dome V-8 engines that keep maintenance at a minimum . . . rugged "Job-Rated" construction . . . famous Dodge economy and dependability . . . advanced Dodge styling.

Let your Dodge truck dealer show you how this Heavy-Duty Retail Finance Plan helps truck operators with established credit own thrifty new Dodge *Power Giants*. See your dealer soon.

DODGE PowerGiants

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INEERS

Miami. The men went back on the job for the Heftler Construction Co. at its 600-unit Carol City home project, but the unions are appealing the injunction, with a decision expected by union spokesmen shortly.

The four-day walkout, which a union official claims was spontaneous, followed the firm's refusal to buy "union concrete". The area's concrete industry is currently the subject of a Teamster organizing drive, with only one concrete firm in the area under union contract.

* * *

The Philadelphia City Council approved a local law similar to the national Davis-Bacon Act requiring payment of prevailing wage rates on construction work performed under contract with the city.

The law is to be administered by a five-member board including one representative of the building trades unions. Under terms of the legislation, the city can withhold from sums due a contractor the difference between the prevailing wage and wages actually paid if they are below the prevailing rate. In addition, the city can withhold municipal work from contractors for three years following any violation of the law.

* * *

Baltimore contractors will pay union workmen 10 to 20 cents more an hour this year. Most of the pay hikes come under three-year agreements concluded in 1957 after a long strike, but Electrical Workers' Local 28 and the local NECA chapter have avoided the city-wide pattern and continue to operate on a one-year basis.

A settlement reached between the union and the electrical contractors called for a 15-cent increase in electricians' rates, bringing the journeyman scale to \$3.57½. In addition, the 7½-cent health-welfare fund payment negotiated last year continues, and a 10-cent high pay premium (work above 50 feet) is set. The contract is effective for one year from April 1.

April 1 also brought raises for bricklayers, laborers, cement finishers, iron workers, carpenters, drivers, operating engineers, and tile layers. Increases for these crafts range from 10 to 20 cents an hour. New contracts remain to be negotiated this year for asbestos workers, boilermakers, terrazzo helpers, painters, and roofers.

* * *

John H. Lyons, president of the International Association of Iron Workers, gave his full support to the 10-point policy statement of trade practices announced by Richard Gray, president of the AFL-CIO Building Trades Department, and John F. O'Connell, past president of the National Constructors Association.

Support for the code, intended to reduce unnecessary labor costs on construction jobs, was voiced by Peter Schoemann, president of the United Association.

Among the practices condemned by the code are: jurisdictional strikes;

featherbedding practices; non-working stewards; late starting and early quitting on jobs; excessive travel and subsistence payments; work limits and restrictions on the use of power tools or equipment; piece work; and work stoppages during the processing of grievances or disputes in accordance with working agreements.

The policy statement also specifies that the selection of foremen shall be entirely the responsibility of the employer, and area practices not incorporated in collective bargaining agreements are to be disregarded.

* * *

The Circuit Court of Milwaukee

County, Wis., turned down the claims of Sheet Metal Workers' Local 24 that the Wisconsin Employment Relations Board did not have jurisdiction in a case involving alleged unfair labor practices against a Milwaukee firm.

The union claimed that the National Labor Relations Board had preempted the field, holding that even if the business of the primary firm involved, Capitol Erecting Inc., were insufficient, the business of the association to which the firm belonged was enough to bring NLRB into the case. However, the court disagreed, feeling that "if the conduct involved in this case would have affected all the mem-

bers of the association, the total impact might have proved an exception under which the NLRB would exercise jurisdiction. However, that is not the situation in this case. . . . The jurisdiction of the (Wisconsin) board in this case was based purely on the intrastate aspect of the entire situation."

The union had been plugging for employment of its members by Capitol to erect Corruform decking, basing its claim on an award by the National Joint Board for the Settlement of Jurisdictional Disputes. Capitol, a subcontractor, had been using members of the Iron Workers for the job.

He tested them all ... then bought an Allis-Chalmers HD-6G tractor shovel



Don Nourse, a leading swimming pool contractor, rented tractor shovels until he found one that appealed to his operators, his sales force and company officials. Choice of all concerned—the HD-6G.



HD-6G
72 net hp
1½-yd bucket
19,600 lb

A heaping 1½-yd bucket comes out of the excavation for a 25 x 60-ft pool. There was time before lunch to start work on a wading pool.

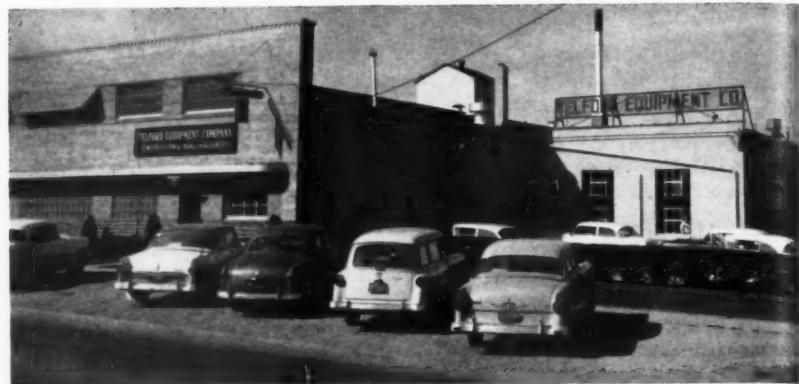
**Look ahead...move ahead
...and stay ahead with**

ALLIS-CHALMERS

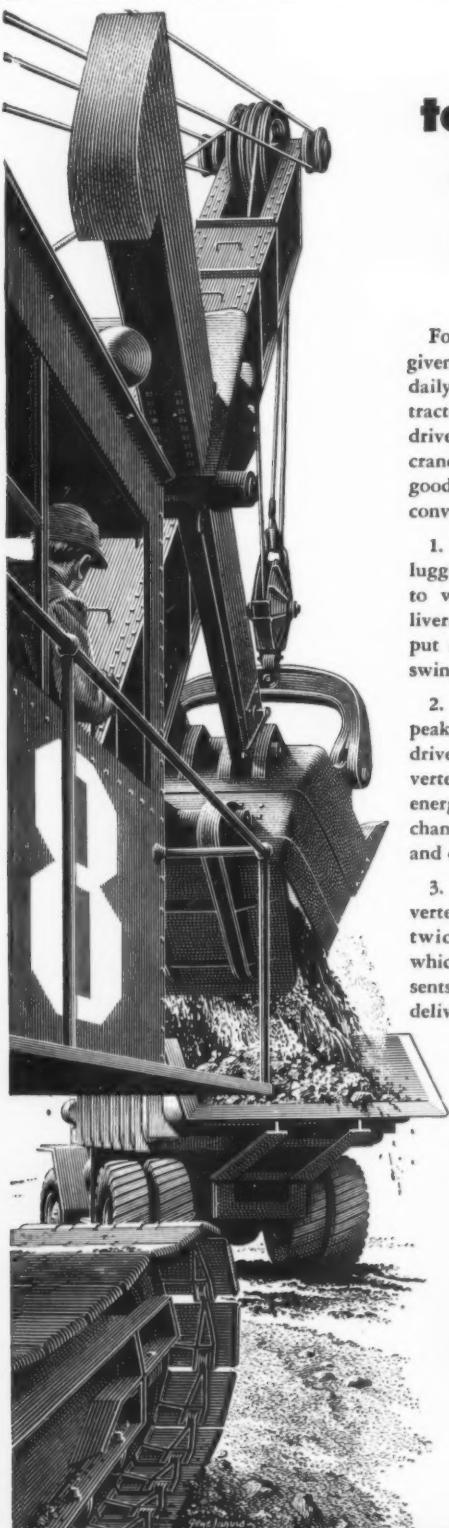
For more facts, use Request Card at page 18 and circle No. 250



Telford Equipment Co.'s main branch in Lansing, Mich., contains offices on the ground floor in front and service and repair facilities in the rear. The building also houses a parts department that carries 60 to 120 days' supply on hand.



Dealer is well organized to meet business demands



Here's why torque converter equipped machines do more work at lower operating cost

For higher work capacity on any given load, and for greater all-round daily production, more and more contractors are specifying torque converter drives in their new excavators, erecting cranes and loaders. And here are five good, profitable reasons why the torque converter is the preferred type of drive:

1. The torque converter eliminates lagging and stalling... permits engines to work at maximum efficiency delivering constant high-horsepower output for heavy digging loads and fast swinging.

2. Smooth converter power reduces peak loads throughout the machine's drive train because fluid within the converter absorbs much of the impact energy caused by quick drum speed change... thus protecting both driving and driven equipment.

3. When necessary, the torque converter smoothly delivers approximately twice normal torque to the drum, which, at slow digging speeds, represents an important advantage in power delivered to the dipper.

4. Cable life is extended since no sharp impact loads ever reach cables through the torque converter... constant line tension is maintained... there's no jerking or snapping.

5. An infinite variety of ratios is available to work with... permitting smooth, accurate, *safe control* of loads and delicate "inching" and "holding" under power... as well as adjusting for wide variations in dipper loading, substituting greater digging effort for speed, when required.

Wherever earth and rock are moved, wherever steel is erected, you'll find contractors using these five advantages... to convert their horsepower into greater-than-ever profits!

• • •

Twin Disc Torque Converters—*three-stage or single-stage, from 30 to 1000 hp*—are available from all leading manufacturers of heavy-duty machines. Be sure to specify one in your next unit. Take advantage of the five reasons why torque converter equipped machines do more work at lower operating cost.

Twin Disc is the world's leading manufacturer of friction clutches and fluid couplings for heavy-duty industrial applications... and the only manufacturer producing both three-stage and single-stage torque converters. Because of its complete line of industrial drives, Twin Disc can offer *unbiased* recommendations for any heavy-duty power transmission application.



TWIN DISC CLUTCH COMPANY, Racine, Wisconsin • HYDRAULIC DIVISION, Rockford, Illinois

BRANCHES OR SALES ENGINEERING OFFICES: CLEVELAND • DALLAS • DETROIT • LOS ANGELES • NEWARK • NEW ORLEANS • TULSA

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When a dealer is on a solid business footing, with smooth parts, sales, and service departments, it can weather any number of difficulties. That is what Telford Equipment Co., Lansing, Mich., has been doing since 1938. One of the dealer's most recent difficulties, and one that lasted a year, occurred when its vice president and treasurer, L. Miner Doolen, was elected president of the Associated Equipment Distributors for 1957.

Doing a conscientious and efficient job in both capacities was tough but, as Doolen explains, "it was possible because I could leave the business in the capable hands of my partner. For somebody else, who is not in this fortunate position, it would be difficult. I would say that my work during the year for AED took about 50 per cent of my time. And about half of that was spent away from the office on trips. It was interesting but demanding work."

While L. Miner Doolen was away attending AED regional meetings, J. M. Telford, president and founder of the company, was keeping the wheels turning at the home office in Lansing. Anticipating that Doolen would be devoting much of his time to AED activities, the firm reorganized its staff. Much of the work of handling the company's finances, normally directed by Doolen, was shifted to the shoulders of several other members of the staff. Telford himself handled his share of the additional work, of course. Floyd C. Pace, one of the company's leading salesmen for 10 years, was brought into the Lansing office as general manager.

Both the Telford Equipment Co. and Doolen made a generous contribution to the AED. Although Doolen received traveling expenses on his trips, he received no salary from the AED. Telford looks at the contribution this way: "Any company, to be worth its salt, should be willing to give something to the industry as a whole. We are proud that we were able to give the AED its first president from Michigan."

Company starts on small scale

The company, however, was not always in a position to supply a president to AED. Back in 1938, when the firm was organized by Telford, it did

J. M. Telford, president and founder of Telford Equipment Co., and L. Miner Doolen, vice president and treasurer, show catalogs on the line of equipment the firm carries.



Whether it has to free a top company official to be an AED president, or service machinery in the field, Telford Equipment gets the job done

well to meet the payroll of its five employees. Things did not improve very much when World War II came along. New equipment was almost impossible to buy, and the company struggled along doing, for the most part, service and repair work.

After the war, new equipment became available and the company grew along with the expanding construction industry. In 1945, Doolen bought a half interest in the company and became vice president and treasurer. Since then the company has steadily grown until now it handles over \$4 million worth of business and employs more than 50 people.

In the course of its growth, the company has established a branch office in Grand Rapids. The branch primarily is occupied with service and parts work, although it handles a limited amount of sales. In 1945, the company started the Telford Equipment Co. of Detroit as a separate organization, with H. R. Modaff as its president. Although the two organizations are distinct, the companies work closely together to sell and service a great variety of construction machinery throughout the state.

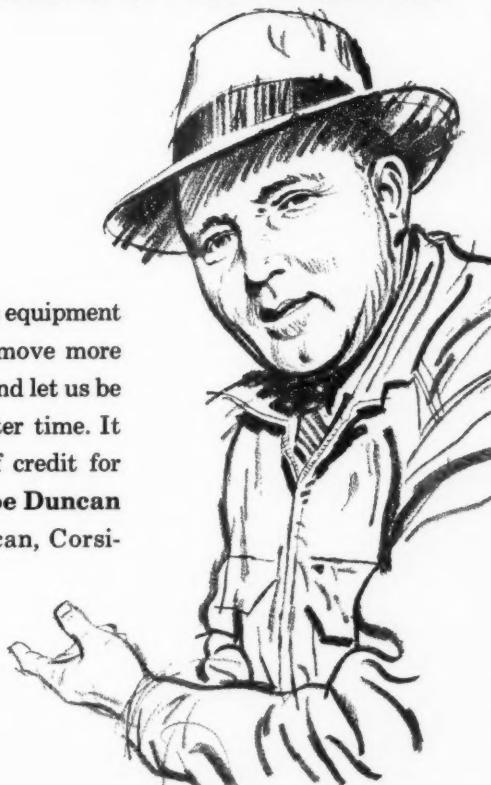
In 1954 the company took on the
(Continued on next page)



Telford checks with service manager Howard Forman on the repair of a transmission from a trade-in Tournapull scraper. The second-hand scraper will be completely overhauled before it is resold. Overhauling trade-ins keeps the shop busy in off-seasons.

Successful bidder on 19 earth-fill dams

"Our Allis-Chalmers equipment has proved it can move more dirt at low cost... and let us be low bidder time after time. It gets a full share of credit for our success," says **Joe Duncan** of Arnett & Duncan, Corsicana, Texas.



TS-360 motor scrapers (15 yd struck; 20 yd heaped), like that shown at the left, are the big guns of the Arnett & Duncan fleet on earth-fill dam construction. Working with the TS-260's (11 yd struck; 14 yd heaped), they help make a high-production, low cost-per-yard team.

**Look ahead...move ahead
...and stay ahead with**

ALLIS-CHALMERS

For more facts, use Request Card at page 18 and circle No. 252





"BERG" CONCRETE SURFACERS

for: bridges, highways, airport runways, dams, culvert, floors, walls.



Model H-8 and H-10 (above). Gasoline powered unit especially designed for surfacing concrete highways, runways, streets, floors. Includes exclusive power take-off for attaching "BERG" flexible shaft surfacing equipment. Model A (right) is lightweight, electric powered unit that suspends from operator's shoulder. Equipped with interchangeable heads and attachments for surfacing bridges, buildings, dams, culvert, walls or similar surfaces. Wire or write for details.

CONCRETE SURFACING MACHINERY CO.
4665 Spring Grove Avenue
Cincinnati 32, Ohio

For more facts, use Request Card at page 18 and circle No. 253

distributor doings

(Continued from preceding page)

LeTourneau-Westinghouse account. And only the next year, the company received an award from LeTourneau-Westinghouse for the greatest dollar volume of sales in the United States.

In addition to Tournapull scrapers, tractors, and rear-dumps, Telford Equipment handles a wide variety of other lines of equipment. It sells Adams graders, also a product of LeTourneau-Westinghouse, and handles the Baldwin-Lima-Hamilton line of Austin-Western gravel plants. To give the customer a good selection of excavating equipment, Telford Equipment has Gar Wood ditchers, shovels, and cranes as well as the versatile Gradall. Among other manufacturers represented by the company are: Hendrix Mfg. Co., Standard Steel Works, Bucyrus Steel Products, and Schramm, Inc.

Present problems

As in other sections of the country, business last year did not measure up to the predictions made the previous winter. Because of the time involved in getting right-of-way and drawing

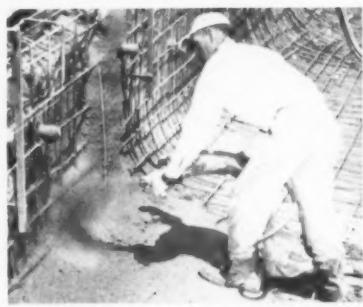
up plans and specifications, construction of the Interstate Highway System has not yet got into full swing. Adding also to the delay of the program in Michigan was the election last summer of a new state highway commissioner. It was to be expected that the change of command, as well as organization, would delay awarding of contracts. The late spring and the wet summer also combined to make it a poor construction season.

Partly as a result of the slow construction last season, the company has experienced difficulty in collecting payments for earthmoving equipment. The company finances about a third of the equipment it sells. According to Telford, contractors are having difficulty making payments because high competition has forced down the unit price of dirt to where it is very difficult to make a profit.

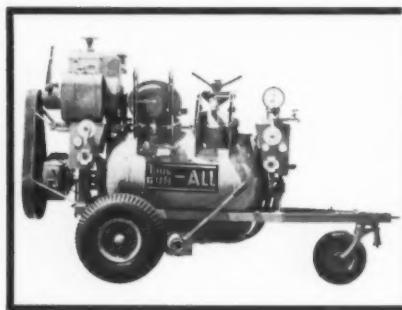
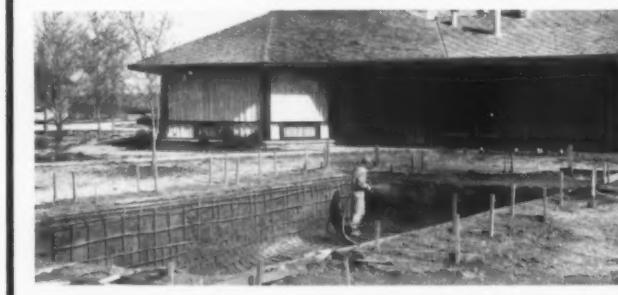
Last season there was "too little dirt to move and too many contractors equipped to move it." Telford believes that this may have been partly the fault of certain distributors. Too often a distributor will sell

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OPERATES WITH A 125 CFM AIR COMPRESSOR



- SIMPLE OPERATION—NO EXPERIENCED OPERATORS REQUIRED
- BUILDS AVERAGE PRIVATE POOL IN ONE 8-HR. DAY
- DUAL MIXING CHAMBERS WET SAND CAN BE USED—
- ELIMINATES SAND DRYING EQUIPMENT



- PLACES CONCRETE THRU LONG HOSE WITH A 125 CFM COMPRESSOR
- SMALL INVESTMENT COMPARED TO COMPETITIVE EQUIPMENT
- ELIMINATES SEPARATE MIXER

TRUE GUN-ALL EQUIPMENT CORP.
P.O. Box 2526, Tulsa, Oklahoma

Gentlemen:

Please send me your illustrated brochure and price list describing the WET-MIX, all purpose True Gun-All.

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Reach
Pardner!
for the
safest, easiest way
to tie re-bars

CAL-TIE WIRE



CF&I Cal-Tie Wire in the handy, belt-borne dispenser eliminates the hazards of clumsy, shoulder coils.

- Can't kink, tangle or catch on protruding objects
- Leaves both hands free
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- No loose ends to cause eye and face injuries

For safety and economy, try Cal-Tie Wire in the new CF&I handy reel dispenser. Coils weigh approximately four pounds. Wire available in sizes 14- through 20-gage. For full details contact the nearest sales office listed below.

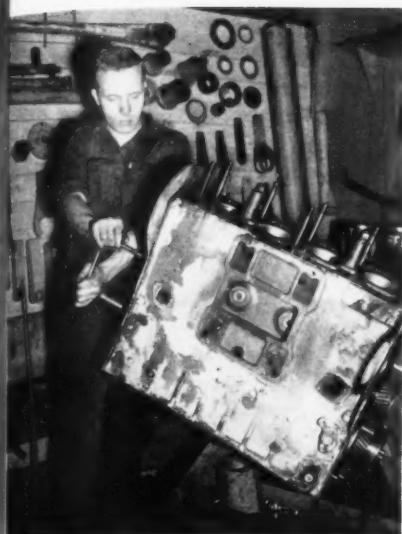
5811

CAL-TIE® WIRE
THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Denver
El Paso • Ft. Worth • Houston • Kansas City • Lincoln (Neb.) • Los Angeles • Oakland • Oklahoma City • Phoenix
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SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia
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For more facts, use Request Card at page 18 and circle No. 255

CONTRACTORS AND ENGINEERS



A mechanic rebuilds a GMC diesel engine that will be used to power a scraper. The rebuilt engine is kept on hand as a replacement for engines that break down in the field.

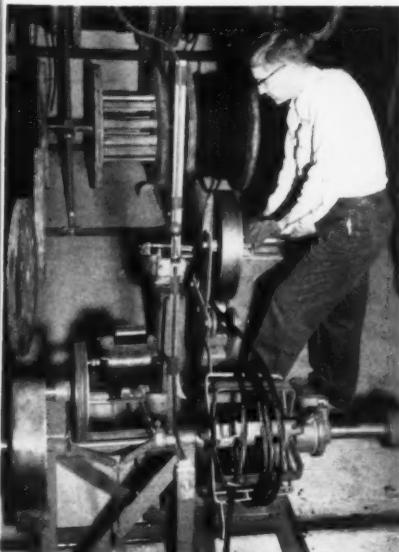
construction highway system full swing. of the program the highway is expected to end, as well as many awards. Spring and summer combined to be a slow construction season. company in collecting equipment about a year sells. Contractors are paid for payments as forced to where profit. too little contractor. Telford have been distributor will sell

a fleet of new earthmoving equipment to a small contractor who cannot afford it. Burdened with high payments, the small contractor is forced to underbid his competitors in order to keep the equipment working. Since his bid does not allow him a legitimate profit, the entire venture is on shaky financial footing.

As an answer to this problem, the Telford Equipment Co. tries to limit its sales to equipment that a contractor can afford. If a contractor is just starting in business, the company tries to sell him some of their rebuilt equipment. They sell a big fleet of Tournapull scrapers only to an established contractor.

Service is key to success

A good service department is one of the main reasons for Telford Equipment's continued growth. The shops at Lansing and Detroit are equipped to handle any major breakdown. The shop at Lansing is one of the few in the area that is equipped for rebuilding hydraulic and diesel pumps. It also completely overhauls trade-in scrapers and other heavy equipment.



A coiling machine wraps up a given amount of cable, and an operator cuts the end with a hydraulic cable cutter. The coiling machine is mounted on skids which ride on steel channels sunk in the concrete floor.

MAY, 1958

As part of its service policy, the company keeps on hand rebuilt diesel engines and transmissions for scrapers. These are used as replacements for engines that break down on operating equipment. The rebuilt engine is put in the scraper in the field, and in less than a day the scraper is ready to roll. The broken-down engine is taken back to the shop where it is rebuilt and then kept on hand as a replacement.

To handle service in the field, the firm has a number of well equipped pickup trucks. These are supplemented by a flat-bed truck equipped with gin poles and winches for handling heavy lifts. The pickups, in addition to their tools, carry spare parts which the mechanic may sell directly to the contractor.

Carrying a complete inventory of spare parts is also a part of the company's service policy. In order to keep between 60 and 120 days' supply of parts on hand, the department carries an inventory worth about \$300,000. An efficient file system keeps track of the amount on hand of each item.

tors; rather it is based on offering the equipment on its own merits. The company tries to sell a customer a piece of equipment he can afford, and one that will make him money.

THE END

Madsen Works appoints seven distributors

Madsen Works, Baldwin-Lima-Hamilton Corp., Construction Equipment Division, La Mirada, Calif., has appointed seven distributors to handle sales and parts service on its asphalt plants and asphalt-plant equipment.

White Star Machinery & Supply Co., Inc., 301 N. St. Francis, Wichita, Kans., will cover that state, with the exception of 25 counties. Jess McNeil

Tough road duty tests operator and machine

Otto Nikoley, Alta, Iowa, works full time maintaining roads.

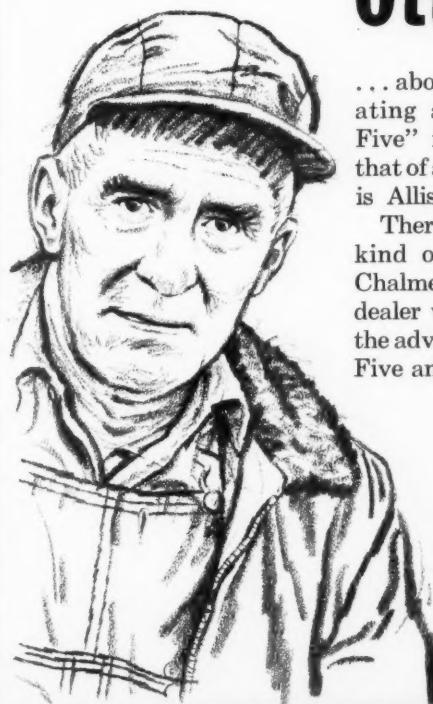
Eight months a year, he and the Allis-Chalmers Forty Five motor grader work a program of finishing dirt and gravel roads. An average of three passes is all that's required to finish most of his jobs. During winter months, the grader is still productive. Equipped with snowplow, the machine is busy keeping roads open and traffic on the move.

Otto and the Forty Five work well together. There's plenty of power at hand to do the job. The Forty Five is easy operating, too. The platform is roomy and the deck is clear. Visibility is excellent all around, sitting or standing. And the blade's controls can't kick back. When Otto moves the lever, toggle engages or releases clutches surely, without wrist snapping backlash.



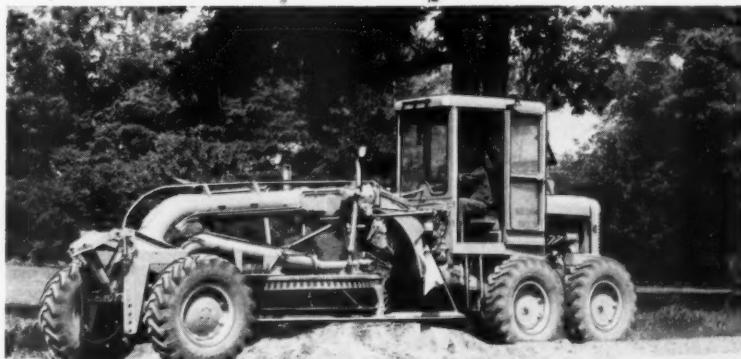
Put your men on Allis-Chalmers motor graders . . . preferred by more operators, bought by more owners every year. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

Ask Operator Otto Nikoley



... about motor graders. He's operating an Allis-Chalmers "Forty Five" in Iowa. Otto will tell you that of all types of graders, his choice is Allis-Chalmers every time.

There are good reasons for this kind of enthusiasm. Your Allis-Chalmers construction machinery dealer will be glad to demonstrate the advantages that make the Forty Five an operator's favorite.



FORTY FIVE

120 brake hp • 6 speeds forward • 3 speeds reverse • 23,800 lb



ALLIS-CHALMERS

For more facts, use Request Card at page 18 and circle No. 256

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INEERS

distributor doings

Machinery Corp., 2215 N. W. Loop 13, San Antonio, Texas, will serve seven southern counties and six western counties in that state. Southern Florida will be handled by Blanchard Machinery, Inc., 601 N. W. 54th St., Miami.

The other new dealers include Bogle Equipment Co., 801 E. Third St., Lexington, Ky., which will cover that state, with the exception of three counties; Western Machinery Co., 820 N. 17th Ave., Phoenix, Ariz., exclusive distributor for that state; Construction Equipment Co., Inc., 18 Bedford St., Portland, exclusive distributor for the state of Maine; Werckle Construction Equipment Co., 718 Miller, Rockford, Ill., serving 15 Illinois counties.

Buck Equipment appoints dealers in seven states

The Buck Equipment Corp., Cincinnati, Ohio, manufacturers of automatic hoisting machines, has awarded exclusive franchises to seven new dealers. The dealers are: Central Supply & Equipment Co., Perryville St., Danville, Ky.; Monty Machinery Co., 2121 W. Vaughn Road, Great Falls, Mont.; Contractors Supply Corp. of New Jersey, 410 S. Dean St., Englewood, N. J.; and Syracuse Ladder & Scaffolding Co., 2101 S. Salina Ave., Syracuse, N. Y.

The others are: Safway Scaffolds of Wichita Falls, Inc., 2705 Grant St., Wichita Falls, Texas; Lund Machinery Co., 2350 S. W. Temple, Salt Lake City, Utah; and Wortham Machinery Co., P. O. Box 2292, Casper, Wyo.

Harnischfeger division presents dealer awards

The Construction and Mining Division of Harnischfeger Corp., Milwaukee, Wis., has presented its 1957 dealer award plaques to top-volume dealers in three sales areas.

The award winners were: Gleason Equipment Co., Chicago, Ill., for domestic sales; Accessories Machinery Ltd., Montreal, Quebec, for Canadian sales; and Voltas Ltd., Bombay, India, for international sales.

Both Accessories Machinery, Ltd. and Voltas Ltd. were repeat winners, having received awards in 1956. Gleason Equipment's award comes at the end of its first year as a P&H dealer.

Cleveland Trencher names Pennsylvania distributor

A. T. Green Machinery Co., Route 8, Pittsburgh, Pa., has been appointed a distributor of the complete line of trenchers, side cranes, backfillers, and tampers manufactured by the Cleveland Trencher Co., Cleveland, Ohio. Green Machinery will handle sales, parts, and service of the equipment in 27 counties of western Pennsylvania.

Clark names distributors

McCarthy-Jones & Woodward, 723 Argyle Ave., P. O. Box 1190, Nashville 2, Tenn., has been appointed to sell and service Michigan tractor shovels, tractor-dozers, tractor scrapers, and excavator cranes, products of the Construction Machinery Division, Clark Equipment Co., Benton Harbor, Mich. The Tennessee distributor covers the counties of Pickett, Overton, Putnam, White, Van Buren, Grundy, and Franklin, and continues west to the Tennessee River.

Story Brothers, Inc., 4130 Clinton Highway, Knoxville, Tenn., has been appointed to sell and service the Michigan line. The dealer will cover six Tennessee counties and four Georgia counties.

The sales territory of Spreitzer, Inc., Cedar Rapids, Iowa has been expanded to include 31 counties in Illinois.

Yale & Towne appoints

The Yale & Towne Mfg. Co., Batavia, N. Y., has appointed San-Day Equipment Co., 614 Dale Ave., Knoxville, Tenn., distributor for their Trojan line of tractor shovels for eastern Tennessee. Burt Moore will serve as general manager and executive head.

B-L-H names distributor

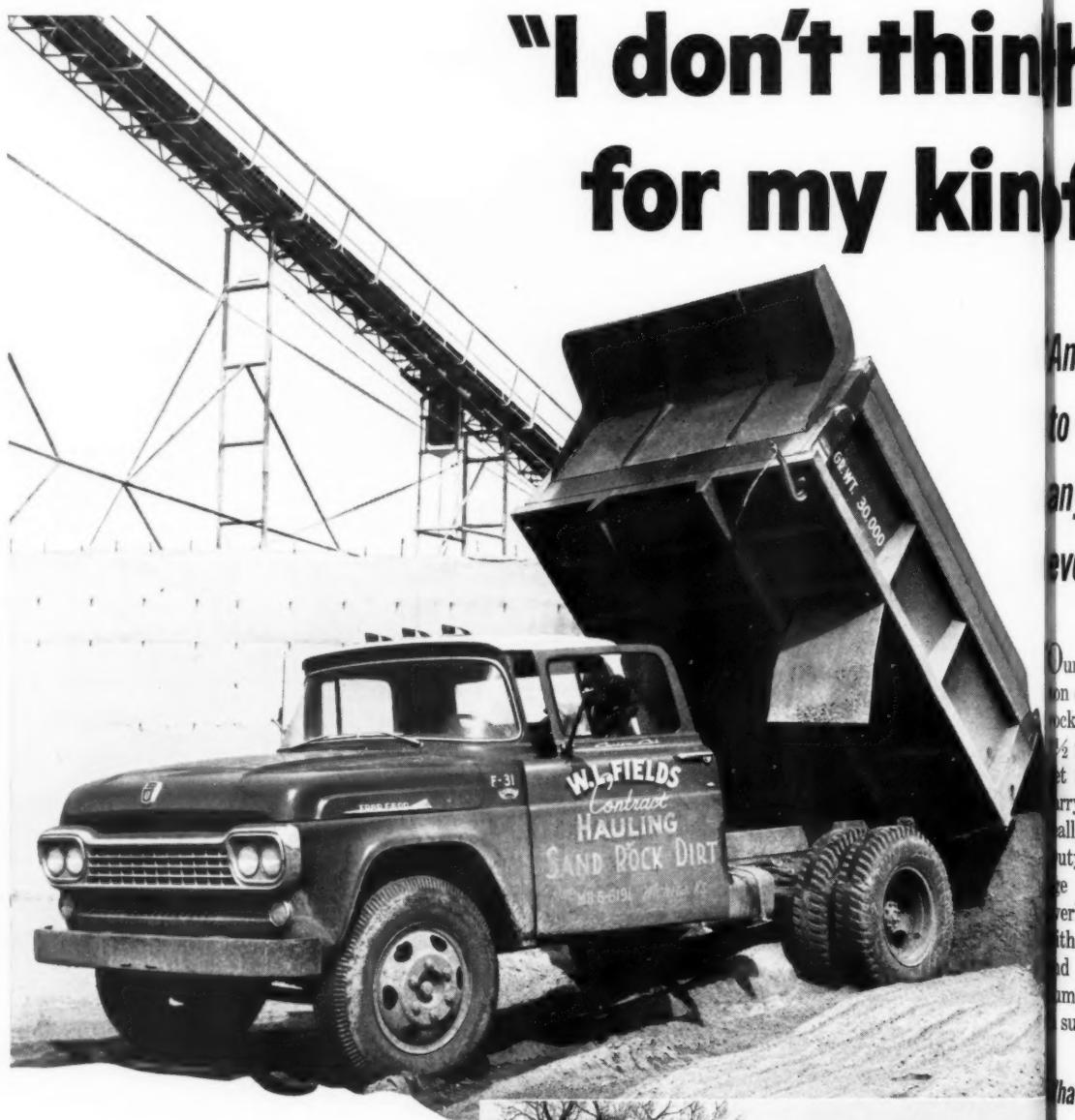
Baldwin-Lima-Hamilton Corp., Construction Equipment Division, Lima, Ohio, has appointed Western Machinery Co., with offices in Phoenix

and Tucson, a distributor for the entire state of Arizona. The company handles Lima shovels, cranes, draglines, pull shovels, and the Lima Roadpacer vibratory compactor.

Baltimore distributor named to head annual fair

The third annual Construction Fair of the Associated Builders and Contractors of Maryland will be held on the 24th and 25th of this month at the Baltimore Raceways on Pulaski Highway. Chairman of this event is John E. Cross, Jr., vice president of Elphinstone, Inc., Baltimore construction and machinery distributors.

Cross and his committee have organized over 10 acres of exhibits pertaining to the construction, build-



Official registrations show...

**AMERICAN
BUSINESS BUYS
MORE
FORD TRUCKS
THAN ANY
OTHER MAKE!**



FORD TANDEM with 10-yard dump body and new F-600 with 5-yard dump . . . part of Mr. W. L. Fields's Ford Fleet.

ing, and allied trades. The theme of the show is "Maryland Builds".

California dealer handles Kwik-Mix equipment line

Kroeger Equipment Co., 279 El Cajon Blvd., El Cajon, Calif., has been appointed to handle the full line of construction machinery manufactured by the Kwik-Mix Co., a division of Koehring Co., in Port Washington, Wis. Kroeger Equipment will cover San Diego County.

Stanco Mfg. & Sales moves to Santa Monica

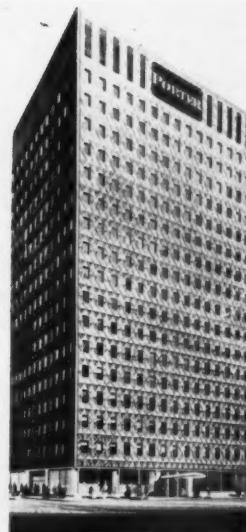
Stanco Mfg. & Sales Co., formerly located in West Los Angeles, Calif., has moved to new quarters at 1666

Ninth St., Santa Monica. These new headquarters house general offices, a display area, service department, stockroom and warehouse.

The firm, headed by Herman Stayner, is a national distributor for Hiab hydraulic truck cranes, Flygt portable submersible drainers, and Pionjar portable rock-drilling and breaking machines, all of Swedish manufacture.

J. I. Case promotes

Robert F. Kehrer has been made industrial parts manager for J. I. Case Co., Racine, Wis. He has been acting assistant parts manager since he joined the firm last year. Kehrer was formerly with Massey-Harris-Ferguson, Inc., Racine.



The 16-story Porter Building, Pittsburgh's newest skyscraper, features an aluminum curtain wall, fireproofed with a 4-inch back-up wall of perlite concrete.

in here's a tougher truck in work"

says W. L. Fields
Contract Hauler, Wichita, Kansas

*And they cost less
to operate than
any trucks we've
ever owned!*

Our 13 Fords are mostly two-ton dumps. They haul 6 yards of rock and sand, averaging about $\frac{1}{2}$ miles per gallon of gas. We get 6 mpg with Ford tandems carrying 14 tons. And they all really hold up. Ford's Heavy Duty V-8's are good for an average of 75,000 miles before an overhaul! We have a '55 Ford with over 150,000 miles on it, and I'll bet there's not another dump truck around here that's such good shape."

*whatever your business...
there's a FORD truck for your
special needs*

Official registrations for 1957 show that American business buys more Ford trucks than any other make. There are many reasons



FORD'S NEW 292 HD V-8
Brake Horsepower—187 @ 3800 rpm
Bore—3.75 in. Stroke—3.30 in.
Displacement—292 cu. in.

for this popularity . . . many reasons for *you* to make your next truck a Ford!

Ford trucks are your best buy, too! Ford's initial costs are *low* and resale value is traditionally *high*. Modern Ford Styleside pickups, for instance, are the lowest priced with full cab-wide body . . . giving you 23% more loadspace than any traditional type pickup box.

Only Ford offers the economy

of Short Stroke power in all engines, Six or V-8. And Ford's Heavy Duty V-8's offer new, advanced durability features. Ford's rugged cab and chassis construction means these new '58s are built to last. All this plus the proven fact that Ford trucks last longer adds up to America's No. 1 truck value.

See your local Ford Dealer for the latest in '58 trucks or the best in A-1 used trucks.

FORD TRUCKS COST LESS LESS TO OWN...LESS TO RUN...LAST LONGER, TOO!

For more facts, use Request Card at page 18 and circle No. 257

MAY, 1958

Pittsburgh skyscraper has new fireproofing system

Featured in the design of Pittsburgh's new 16-story Porter Building, home office of the H. K. Porter Co., Inc., are aluminum curtain-wall construction and a new type of fireproofing.

The fireproofing system uses perlite, an expanded volcanic glass rock, as an aggregate in both the concrete and plaster. The structure's steel columns are protected with a 1 3/4-inch thickness of perlite-gypsum plaster applied over self-furring metal lath. The building's aluminum "skin" is fireproofed with a 4-inch back-up wall of perlite concrete, weighing 32 pounds per square foot, that insulates as well as resists fire. The thinness and lightness of the wall provide additional floor space and save on the structural steel needed for the building.

Waukesha Motor Co. buys Le Roi's engine business

Le Roi Division, Westinghouse Air Brake Co., Milwaukee, Wis., has sold the assets of its engine business to Waukesha Motor Co., Waukesha, Wis. Le Roi's line of internal combustion engines, plus certain inventories, special tools, and equipment make up the major assets involved in the transaction.

The removal of this engine line will permit Le Roi to concentrate on its air compressor and tool business. The division will continue to manufacture smaller gasoline engines in the 30 to 50-hp sizes for use in powering its own products.

Paper company absorbs Fulton Bag & Products

Fulton Bag & Products Co., New Orleans, La., is being absorbed through a cash transaction as a division of the West Virginia Pulp & Paper Co., New York City manufacturers of paper, paperboard, and paper products. Fulton Bag produces waterproof paper-lined bags, textile bags, canvas products, etc.

The present management of Fulton Bag & Products, headed by Jason M. Elsas, will continue. No changes are contemplated in the operating or sales organization.



Handling two contracts on the New England Thruway, Mount Vernon Contracting Corp., Mount Vernon, N. Y., starts paving with a Koehring 34-E paver. A Mack truck delivers the batches and a Blaw-Knox spreader levels off the mix.

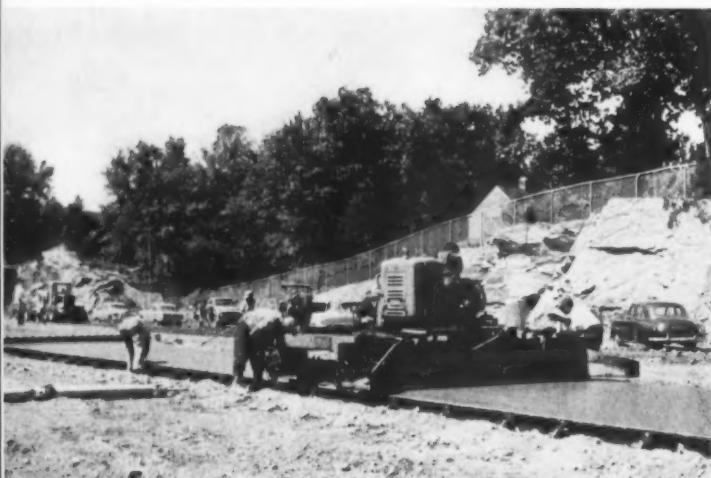


Crews place welded-wire mesh reinforcing over the first lift of concrete. Both the Koehring paver and the B-K spreader move back to place additional concrete that will bring the slab to a 9-inch thickness.

Grading, concrete paving shape new thruway section

Contractor works adjacent contracts at the same time to push work to completion on New England Thruway

by ANTHONY N. MAVROUDIS
field editor



After the B-K finishing machine goes by, crews use an aluminum straightedge and a burlap drag to give the slab its final finish.

Grading and paving were handled simultaneously—though on two adjacent contracts—by one contractor on the New England Thruway. The sections are near Rye, N. Y., just south of the Byram River Bridge, that links the Thruway with the Connecticut Turnpike.

The two contracts, amounting to more than \$8 million, are held by Mount Vernon Contracting Corp., Mt. Vernon, N. Y., which has been working since August, 1956, to shape 2½ miles of 6-lane roadways and some 5½ miles of access road through this heavily populated section of Westchester County.

Because of the different starting dates for the contracts, Mount Vernon

began paving the two 37-foot roadways covered by one contract, while it continued grading on the northern contract. Average production was 1,600 to 1,800 linear feet of 13-foot pavement each day. Roadways consist of a 13-foot lane flanked by two 12-foot lanes. The two roadways are separated by an 8 to 10-foot-wide raised concrete mall, which has a double-faced steel barrier wall to prevent head-on collisions.

About 10,000 linear feet of Blaw-Knox 9-inch keyed forms were kept on the job during the paving operation; the forms were set at least 1,500 feet in front of the Koehring 34-E paver at all times. Form stakes were driven by a pneumatic hammer pow-

Working on the northern stretch, this P&H shovel uses a 2½-yard bucket to load a Euclid 15-yard rear-dump. Rock is being drilled, background, by Ingersoll-Rand drills.



One of the Joy track-mounted drills on the job sinks a 2½-inch hole into the rock on the southern stretch with a carbide-insert bit. Rock excavation totaled more than 600,000 yards.



ered by a 125-cfm air compressor.

Leading the paver was a Caterpillar No. 12 motor grader equipped with Roadgrader Gauge Corp. blade extensions, to trim the subgrade between the forms. The blade extensions were set and adjusted to cover the entire 12 or 13-foot width of a lane for a 9-inch depth. At either end, the extensions were supported by a wheel attachment that rode on either the steel forms or completed slab. This allowed the grader operator to drop the grader blade and extensions until the wheel attachments at the end came to rest on the forms or slabs. After being trimmed, the grade was compacted by a 10-ton 3-wheel roller and checked with a scratch board.

The Koehring paver, usually riding outside of the forms, discharged in front of a Blaw-Knox spreader which leveled the concrete to a 6-inch depth. This allowed workmen to place the welded-wire mesh reinforcing 3 inches below the slab surface. The paver and spreader made a second pass, placing concrete over the wire mesh to complete the 9-inch slab. Water for the paver was supplied from a 3,000-gallon tanker pulled by a White truck tractor.

Contraction joints—Acme transverse joints with Flexcell joint fillers—were spaced on 100-foot centers. A metal cap covered the joint fillers to permit continuous paving over the joints. Caps were removed before the concrete hardened, and the void was later filled with an asphaltic filler.

Following the spreader came a Blaw-Knox double-screed transverse finishing machine, and the aluminum straightedge and burlap-drag finishing crews.

The slab was covered with Sisal-kraft paper for a 5-day curing period, but forms were stripped after 24 hours. Form stakes were removed with a manual pin puller, and the forms loaded onto a truck and moved ahead to be reset.

The concrete batches were supplied by a plant set up at Port Chester, N. Y., and operated by the Colonial Sand & Stone Co., Inc., New York, N. Y. This firm used about 10 Mack diesel batch trucks, each with a 7-batch capacity. This plant also supplied ready-mix concrete to the Byram River Bridge project.

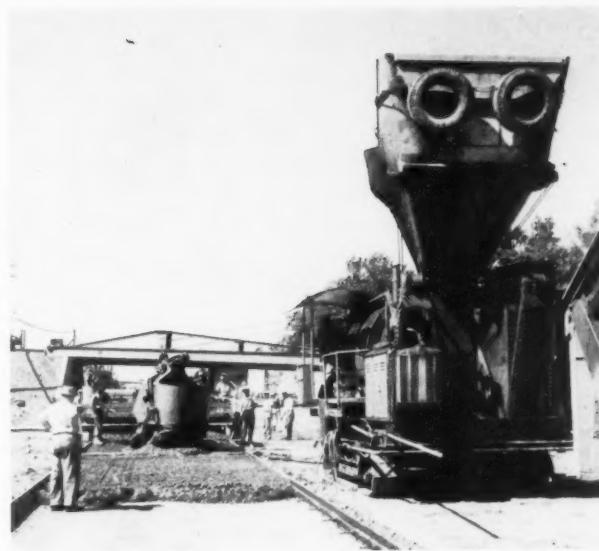
Earthmoving operations

While Mount Vernon was paving the southern stretch, grading operations were active throughout the adjacent section. Both required over 600,000 cubic yards of roadway excavation, which was rock, and 160,000 yards of borrow.

On this phase of the work, the contractor used about 30 Euclid 15-yard rear-dumps to haul the rock from cut to fill areas. Five shovels, equipped with 2½-yard buckets, were used during peak operations to load this fleet of rear-dumps. Four shovels usually worked, averaging over 4,500 cubic yards of rock excavation every 8-hour day.

(Continued on next page)

The Koehring paver works outside the forms as it dumps concrete over the reinforcing. The contractor had 10,000 linear feet of Blaw-Knox 9-inch keyed forms on the job, and kept forms set 1,500 feet ahead of the paver.



Throughout the industry Hendrix Dragline Buckets are reducing maintenance costs, because they're built to last longer. It's this *extra service* from Hendrix Buckets that makes the big difference in profitable operations!

HENDRIX DRAGLINE BUCKETS

"A Type for Every Digging Purpose..."
½ to 40 Cubic Yards—Perforated or Solid

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MANSFIELD, LOUISIANA





A Blaw-Knox transverse finishing machine works just behind the spreader. Alongside the spreader is the 3,000-gallon tanker that keeps the paver supplied with water.

(Continued from preceding page)

Four track-mounted drills, Joys and Worthingtons, and 22 wagon drills—a Joy and 21 Ingersoll-Rands—were used to sink the 2½-inch-diameter holes to average depths of 20 feet. The drills, equipped with carbide-insert bits, were powered by compressors set up in banks throughout the job. These consisted of 17 Ingersoll-Rand Gyro-Flo air compressors: thirteen 600's, three 185's, and a 125-cfm.

Mount Vernon varied the spacing of the drill holes, as well as the dynamite charge of Du Pont 40 per cent gelatin, because of the built-up area being traversed. The deepest cuts on the project were between 40 and 50 feet, and varied in width from 60 to 180 feet. Since fills were balanced, all the rock excavation was used to build up the subgrade. Most of the borrow material was used as select fill and as backfill around the eight grade-separation and railroad structures.

The roadway fill was spread by 11 Caterpillar D8 tractor-dozers, and compacted with steel-wheel rollers. A 9-inch bank-run gravel base, compacted with sheepfoot and wobble-wheel rollers, was placed over the subgrade and topped with the 9-inch reinforced-concrete roadway slab. Paving of this stretch starts this spring.

Personnel

Angelo A. Norelli is the project manager; Fiore DiMarzo, the superintendent; and Phil P. Fox, the chief engineer for Mount Vernon Contracting.

THE END

Highway system uses new type of mobile radio

Transistor-powered 60-watt mobile radios are being used in a state-wide two-way radio system, linking North Carolina's Highway Department headquarters in Raleigh with division and district offices throughout the state. The new units, manufactured by the General Electric Communication Products Department, are part of a communications network which, when completed, will involve 400 radio-equipped vehicles.

A Calendar of Conventions, of interest to our readers, appears on page 106.

HRB bulletin reports on pavement conditions

Highway Research Board Special Report 30, "Pavement Condition Surveys, Suggested Criteria", is now available from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. The bulletin was prepared as a step toward establishing uniformity in reporting condition surveys of pavements.

The first part of the report outlines various types of condition surveys and suggests methods of making them—field procedure, project record cards, and safety measures. Appendices A and B contain definitions of highway construction types according to federal classifications, and definitions of terms for pavement-condition sur-

veys. Appendix C contains suggested forms for use in making these surveys.

Many pictures, tables, and charts are included in the bulletin, which is priced at \$1.80.

American Cyanamid Co. opens new department

American Cyanamid Co., New York, N. Y., has consolidated its mining chemicals and explosives sales activities into a new combined unit, which will be known as the explosives and mining chemicals department. The new department will become a part of the company's Organic Chemicals Division.

G. C. Holton, manager of the new department, will be assisted by J. R. Burkett and F. A. Griffin.

Before you bid that next job . . . compare the earning power of "Twins"

Unless your equipment can help you increase production — without a corresponding increase in costs — you may have a problem instead of a profit on your next job.

There's one sure-fire way to increase productivity — use the latest methods and the most efficient equipment available for the job,

even if it means replacement or addition to your fleet. To stay competitive and still get your share of work — at a price that brings a profit — you simply can't afford to pass up the higher return on investment with new techniques and machines. Here's a typical comparison . . .

On an investment of \$255,000 . . . 38% gross return

Suppose you have a spread of three 18 yd. single engine scrapers working on a 2,000' haul. They're push loaded by a 300 h.p. "super" tractor and you're also using a motorgrader and 200 h.p. dozer and roller. Conditions are average (7% rolling resistance) so your scrapers produce about 360 yds. per hour. Total investment for the entire spread would be about

\$255,000 — an hourly cost of \$77.30. That figures out to 21.5c a yd. Assuming a work season of 2,000 hours, you'd have a total production of 720,000 yds. At an average bid price of 35c a yd., gross revenue would amount to \$252,000 and your dirt moving cost would total \$154,800. The return is 38% on the equipment investment.



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J. R.



The 96-inch-diameter concrete pipe sections for the \$10.3 million sewage interception line in Louisville, Ky., are produced at Kentucky Concrete Pipe Co.'s Louisville plant. Here the outer form for a pipe section is dropped around welded-wire fabric reinforcing cages.

Heavy reinforcing goes into concrete pipe for sewer line

Concrete pipe, reinforced with what is believed to be the heaviest gage of welded-wire fabric ever used, forms part of a \$10.3 million sewage interception line being constructed at Louisville, Ky. The 8-foot-ID line, with 9-inch-thick walls, runs over two miles north from a new treatment plant southwest of the city, and turns east to tie into the present sewer system.

The 2x8 extra-heavy welded-wire fabric reinforcement has 0.505-inch-diameter wires at 2-inch centers circling the pipe. No. 4 gage wires at 8-inch centers space the heavy wires. Two concentric cages of the fabric are used in each 8-foot-long section of the pipe.

In addition to the fabric reinforcement, there are 1/2-inch round stirrups to increase the resistance to shear. Twelve stirrups, placed at the top and bottom of the pipe diameter, are spaced 4 1/3 inches circumferentially and 6 inches lengthwise.

Pipe plant

The Louisville plant of Kentucky Concrete Pipe Co. produces an average of three 8-foot sections per day. A Universal 8-inch-diameter roll wire bender rolls the nearly 30-foot-long 94-inch-wide sheets into cages. The stirrups, which also keep inner and outer wire cages 6 inches apart at the top and bottom of the pipe, are welded from outside the cages.

Kentucky Concrete uses an 8 1/2-bag ready-mix concrete for the pipe. The pipe is cured with 130-degree steam for at least 24 hours. The concrete has a strength of 5,500 psi at 28 days.

Pipe laying

The 16-foot-deep 60-foot-wide trench is sheathed with piling driven to a depth of 30 feet. A specially designed template positions the piling, holds it vertical, and guides it into place as it is driven.

After the piling has been driven, a crane with a clamshell digs out inside the template to near final grade. This same crane lowers the concrete pipe sections into place. After the pipe is placed, a smaller crane pulls out the sheet piling, and two dozers backfill the trench.

THE END

Cross cautiously—last year 370 persons were killed while crossing at an intersection with signal.

HOURLY PRODUCTION

2000' haul—average conditions, 7% rolling resistance—50 minute working hour

120 yds.
170 yds.

18 yd. single engine
scraper push-loaded
by "super" tractor

TS-24 "Twin"
self-loading

COST PER YARD

2000' haul—average conditions, 7% rolling resistance—50 minute working hour

21.5¢
19.1¢

18 yd. single engine
scraper push-loaded
by "super" tractor

TS-24 "Twin"
self-loading

16% lower investment . . . 33% higher return

Now, let's say you put two Euclid TS-24 "Twin" Scrapers on the same job and use the same grader and dozer. With the "Twins" self-loading in the average condition, a reasonable estimate of production would be a total of 340 yds. an hour. Total investment, with dozer, roller and grader, would be \$214,000. Hourly cost of the complete spread would be \$65.00, with a cost per yard of 19.1¢. Season production of 680,000 yds. would produce

gross income of \$238,000 at 35¢ a yard. Your dirt cost of \$129,880 would result in a 51% return on the equipment investment.

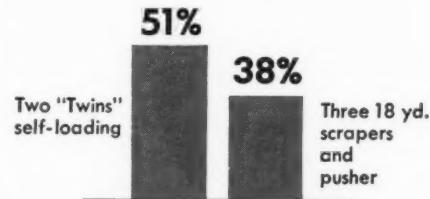
The figures in the above comparison may not jibe with your cost figures but they're down-to-earth estimates of the built-in productivity of the "Twin". Based on your own experience, use production and cost figures that you're sure of and you'll find that Euclid "Twins" will give a tremendous bidding and profit advantage on any size and kind of job.

And don't overlook the bonus performance of the TS-24 that doesn't show in specs or calculations. For example, it's self-loading and independent of other equipment for pioneering work and small yardage jobs . . . it has all wheel drive that enables it to work earlier and later in the season, under conditions that keep other scrapers sidelined. And when you're really pressed for time and yardage, you can add a pusher tractor to get almost unbelievable hourly production.

With "Twins" in your fleet you can bid more work, more profitably and realize the highest return on investment. For facts and figures proof, and a demonstration on your job, see or call your Euclid dealer.

RETURN ON INVESTMENT

Comparative return on investment—3 single engine 18 yd. scrapers with "super" pusher versus 2 Model TS-24 "Twins" self-loading



Engineered to fit the job . . .
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Piers of the Byram River Bridge—the link between the New England Thruway and the Connecticut Turnpike—stand in various stages of completion. Steel beams, supported by brackets bolted to the columns, support timbers that, in turn, support formwork for the cap.

**Contractor sets tight pouring schedule
for crews; cofferdam for river pier
is tied to rock on shore**



A steel cofferdam section is picked up by a Lima 802 with 95-foot boom as work begins on a three-sided cofferdam tied into the bank on the New York side of the river. One of the river piers is being built in this cofferdam.

Fast pier-forming works

Mass-production forming and an interesting method of cofferdam construction enabled a contractor to complete 13 land piers for a bridge in only 9 months, and cleared the way for work on approach-span steel.

This \$3,500,000 project is the 2-mile-long Byram River Bridge, which crosses the river separating New York and Connecticut. When finished at the end of this year, it will link the New England Thruway and the Connecticut Turnpike.

Pier construction

Substructure work was let to Poirier & McLaine Corp., New York, N. Y. Most of the piers consist of four 4-foot-diameter columns, spaced on 32-foot centers, while the remaining piers, including the two river piers, have five 7-foot-diameter columns, which are on spread footings on rock. These reinforced-concrete footings

vary in depth and size, depending on the height of the columns. The largest measures 17 x 18 feet and is 4½ feet deep; it supports a 7-foot-diameter 60-foot-high column. The smallest is 8 x 10 feet and is 3½ feet in depth. Forms for the footings were fabricated on the job with 1 x 6-inch tongue-and-groove sheeting.

Poirier & McLaine used semicylindrical steel forms, furnished in 6, 4½, and 18-inch-long sections, to build the 20 to 60-foot-long columns. These sections were carefully bolted together to form a complete column with a 6-foot section at the top. The 6-foot form sections had cut-outs on opposite sides so that templates could be positioned on the longitudinal sides of the column to support four 12-inch-long, 1¼-inch-diameter bolts. These bolts, positioned with spirals, were removed 8 hours after a column was poured. This provided a means

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Today's Jaeger Sure Prime pumps deliver performance never before offered—and at slower, long-life operating speeds. For example, a Jaeger 6PH can handle 100,000 gph as a dewatering pump or deliver 975 gpm at 60 psi pressure for well point jetting or gravel washing. Base your pump buying on latest information. See your Jaeger distributor or send for catalog.

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CONTRACTORS AND ENGINEERS

Inclined holes are drilled into the rock by an Ingersoll-Rand pneumatic drill so that the cofferdam can be tied into the bank. Soldier beams for the cofferdam are tied to the rock by struts.



A strut is anchored to the bank. Two reinforcing bars, inserted into the drilled holes and grouted, were bent and a steel plate welded to them. The strut is welded to this plate, and the surrounding area packed with cement.



work speeds turnpike-thruway bridge link

of connecting and supporting the steel beams used to support the pier-cap formwork and concrete.

Once concrete had set, steel brackets were bolted 34 inches below the top of the column. This gave the contractor ample room to place the steel beams, and to build up the timber formwork for the pier cap. Along the entire height of the columns to be poured, the contractor used Safway scaffolding to position reinforcing bars, erect the cylindrical form sections, place concrete, strip forms, and wrap the column with burlap for curing. There was enough scaffolding on the job to allow work to be done on three complete piers, and the contractor generally erected the scaffolding to handle a pair of columns at a time. This helped speed concrete-pouring operations, while the scaffolding between two columns served as cross bracing and supports

for the column forms and hoppers.

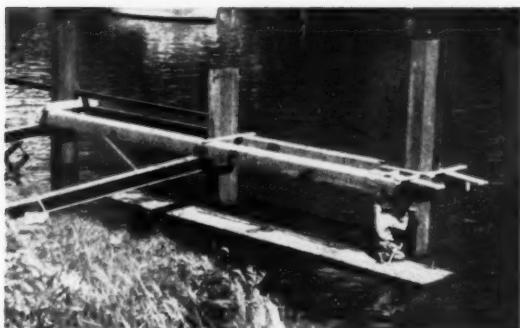
Columns poured

After the continuous vertical reinforcing was positioned by means of templates on top of the scaffolding, the cylindrical form sections were positioned and bolted for the entire length of the column. A hopper was then mounted on the scaffolding over each of the two columns to receive the batches of ready-mix concrete from the bucket.

The crane used to transfer concrete from the trucks to the hopper was a Lorain 2-yard rig with a 70-foot boom and 25-foot jib. A 1-yard concrete bucket was used, however, so that the man inside the column forms had time to consolidate the mix between successive charges. Both columns were poured simultaneously through an elephant trunk attached

(Continued on next page)

A welder connects a waler to a newly driven soldier beam, which will be tied to the bank by a strut. A small welder on shore supplies power for the operation.



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—on the spot cool water pays off on the resurfacing job at the Houston International Airport



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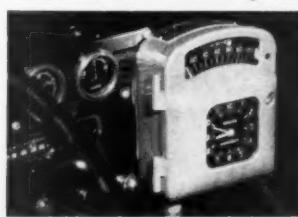
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MAY, 1958

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(Continued from preceding page)

to each hopper. Each elephant trunk was made up so that the man inside the forms could remove the 4-foot sections as he worked his way up, consolidating concrete with a Home-lite gasoline-driven electric vibrator.

Usually, the work was scheduled so that four columns were ready to be poured on Friday of each week. Forms were stripped on Monday, and two more columns were formed and poured before Friday. Another four were formed and poured on Friday. Whenever circumstances permitted, additional columns were formed and poured during the week. During a 5-week period, 45 columns were poured—an average of 9 columns per week. But this good production was

made with pours for many short columns.

After forms were stripped on the third day, columns were wrapped with burlap and water-cured for 7 days. Garden hoses, attached to a main water line, were run to the tops of the covered columns, and water was turned on for an hour, every other hour, during the curing cycle. Continuous wetting was not necessary, since the burlap around the columns retained the water.

Cap beams formed

After the columns were cured and the steel bracket supports bolted to each side of the pier columns, the beams, 21 WF 112, were erected on the brackets. These steel beams were made up of two 32-foot sections which

spanned the two center columns, and two 40-foot-long sections that spanned the outside columns. This provided 8-foot overhangs on each end of the cap, and these were used to support a catwalk around the formwork. The two steel beams supported 10 x 10-inch timbers, 90 inches long, which were spaced on 18-inch centers along the beams. An 8 x 10-inch timber, 14 feet long, was positioned across the beams in place of every fifth 10 x 10 to support the 2 x 10-inch planks making up the catwalk.

Both the 10 x 10-inch and the 8 x 10-inch timbers supported the cap beam formwork—1 x 6-inch tongue-and-groove sheeting that backed up the $\frac{1}{4}$ -inch plywood. The sheeting was braced with 2 x 6-inch studs placed every 12 inches and tied with

the Richmond form hardware that was used exclusively on this project. The 100-foot-long cap beams, 5 $\frac{1}{2}$ feet high and 4 feet wide, support 13 monolithically cast pads for the steel girders of the superstructure. The cap-beam side forms were stripped after 3 days and the bottom forms after 8 days. The burlap-covered concrete was water-cured immediately for a period of 7 days.

River-pier cofferdams

To build one of the two river piers, the contractor used a three-sided cofferdam that was tied into the New York shore-line rock by horizontal struts connected to the cofferdam soldier beams.

Two inclined holes, 2 $\frac{1}{2}$ inches in diameter, were first drilled into the rock on an incline by an Ingersoll-Rand pneumatic drill. Two 2-inch-diameter reinforcing bars were then inserted into the holes and grouted. The protruding portions of the bars were heated by a torch and bent into a horizontal position, and a steel plate was tack-welded to them.

After a soldier beam was driven, the 10 or 12-inch WF strut was welded to the soldier beam and the bearing plate at the rock connection. Ten of the 8 to 24-inch WF soldier beams were driven through shallow overburden to rock by a McKiernan-Terry 9-B-3 hammer mounted on a Lima 802 crane with 95-foot boom. As the beams were driven, and before they were braced by the strut, walers and angle cross bracing were welded between them. Once a strut was placed, the area surrounding the rock connection was formed and packed with cement to prevent any possible movement.

After interlocking sheeting was driven along the outside of the soldier beams and walers, and cofferdam unwatering started, more struts were installed along the soldier beams. These were on 4-foot centers, corresponding to the spacing of the horizontal 6 WF 15.5 walers between the soldier beams—also placed during unwatering operations.

The second cofferdam for the other river pier, 229 feet away, was a four-sided structure with soldier beams driven every 19 feet and braced with walers.

Poirier & McLaine has subcontracted the steel erection to Harris Structural Steel Co., New York, N. Y., which at present is placing the 62 $\frac{1}{2}$ -foot spans between the land piers. Work on the main river spans is expected to get under way late this month.

Personnel

Ed Kennedy is the superintendent on the job for Poirier & McLaine. John Payne is the resident engineer for the New York State Department of Public Works, the agency supervising construction of the entire project. John Clemance is the project engineer.

THE END

Be sure to read *C&E* for June to gain efficiency and economy from the six M's: machinery, maintenance, men, management, methods, and materials.



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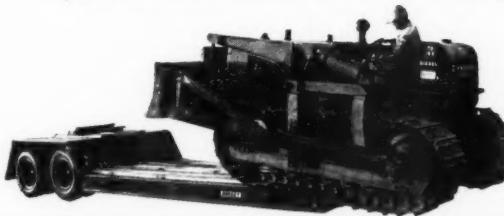
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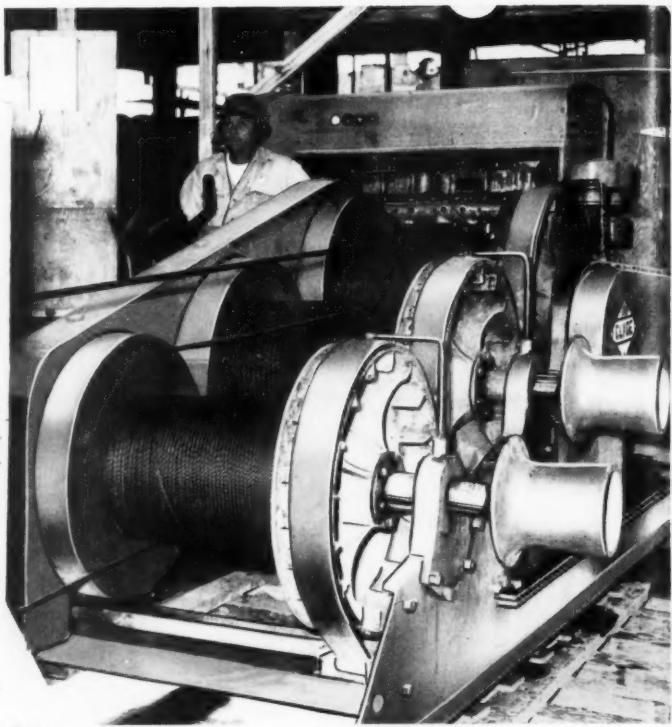
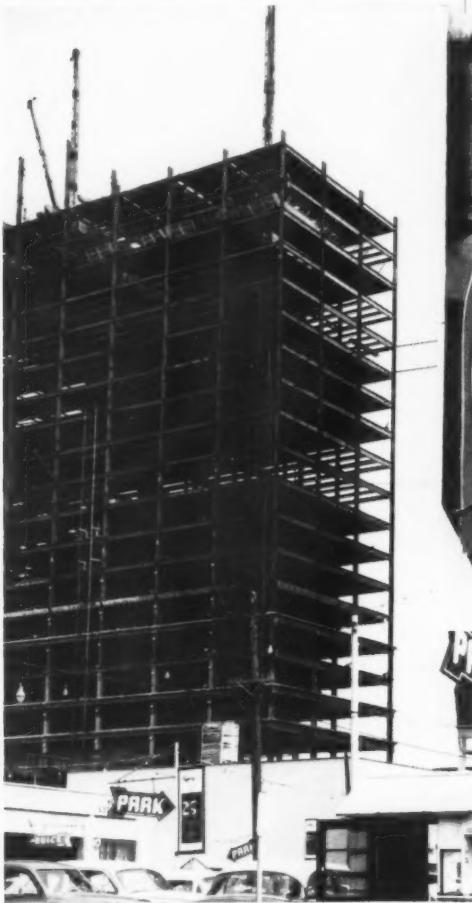
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Clyde Hoists speed construction on Southland Center in Dallas

In the construction of Dallas' ultra modern Southland Center, progress is the day's main order of business. This block-size development is the site of building projects which will change the skyline of downtown Dallas.

Hub of the development is Southland Insurance Company's 42-story office building, being built by the J. W. Bateson Construction Company. A Clyde 3-drum gasoline-powered hoist is the basic materials-handling equipment credited with lifting a gigantic volume of building materials over the last two years. Cost of repairs and maintenance on the 5-year-old hoist is reported as "almost nil."

On the Southland development, as on building projects the world over, the reliability and smooth operation of Clyde hoists—gasoline, diesel or electric powered—help keep progress on schedule, cut costs and eliminate stoppage in materials-handling. These hoists employ the newest and most thoroughly practical design advantages to assure continuous, high-speed operation and long, trouble-free life... advantages that are illustrated and described in special bulletins available upon request. Check with Clyde. Find out why Clyde hoists are the money-wise choice for your materials-handling problem. Write for your copy of Bulletin 4-M.

Submit your
equipment requirements to
Clyde engineering specialists
for detailed recommendations.



CLYDE IRON WORKS, Inc.

Established 1899

DULUTH 1, MINNESOTA

HOISTS : DERRICKS : WHIRLEYS : BUILDERS TOWERS

UNLOADERS : CAR PULLERS : ROLLERS

For more facts, use Request Card at page 18 and circle No. 267

CONTRACTORS AND ENGINEERS



W. T. Elliott (right), executive vice president of Insley Mfg. Corp., greets Ewan Lofgren, tour conductor for the 40 Swedish contractors who made a coast-to-coast inspection of construction-machinery manufacturing plants.

Swedish contractors visit Insley plants

Forty Swedish contractors recently visited Insley Mfg. Corp., Indianapolis, Ind., as part of a month's coast-to-coast tour of construction-machinery manufacturing plants. The contractors saw a demonstration of Insley equipment, and had an opportunity to operate some of the rigs. The men also visited Insley's West Coast Division plant at Los Angeles, Calif.

Ingeniorsfirman Teredo, an Insley distributor in Stockholm, was one of the sponsors of the tour, in cooperation with the Swedish Contractors Association.

Clark film highlights tractor-scaper features

A 16-mm color-sound movie, "Bonus Loads", released by the Construction Machinery Division of Clark Equipment Co., highlights the design and operating features of the Michigan line of tractor scrapers. The 22-minute film shows the 10-cubic-yard-heaped Model 110 tractor scraper, the 18-yard Model 210, and the 27-yard Model 310 working on actual job sites, and explains the features which shorten their work-cycle time.

The film is available to all Michigan distributors in the United States and Canada, and may be obtained by contacting your local Michigan distributor, or writing to Clark Equipment Co., Construction Machinery Division, Pipestone Road, Benton Harbor, Mich.

Construction conference reports are compiled

The proceedings of the Cleveland Engineering Society's sixth annual construction conference have been compiled under the title, "Construction Takes A Forward Look". The proceedings contain talks by authorities in the construction field.

Topics discussed include future building construction; precast concrete; commercial buildings; and atomic power plants. Also covered are a discussion on aluminum; planning power distribution for future needs; and a report on soundproof walls.

Priced at \$1 each, copies of the proceedings may be purchased from the Cleveland Engineering Society, 2136 E. 19th St., Cleveland 15, Ohio.

Work is well advanced on Pennsylvania tunnel

The last 4 feet of rock and earth has been blasted from the first tube of the 3,600-foot-long Fort Pitt Tunnel, which is being bored through the base of Mount Washington, Pa. The blasting occurred less than six months after the start of drilling operations.

The break-through is just inside the exit portal of the northbound portion of the twin-tube tunnel, opposite the Monongahela River at the gateway to Pittsburgh's Golden Tri-

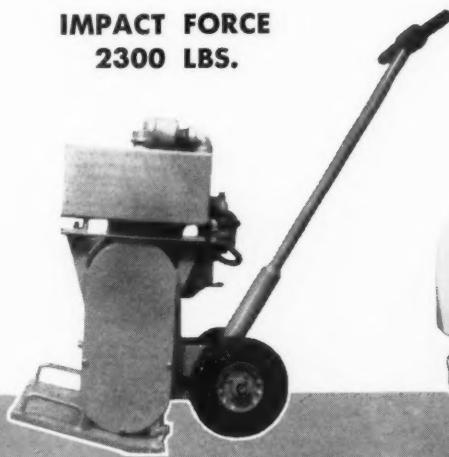
angle. Work is well advanced on the second tube, which will handle southbound traffic.

When the \$17 million project is completed in February, 1960, it will connect the east and west sections of the Penn-Lincoln Parkway. The tunnel is being built for the Commonwealth of Pennsylvania, Department of Highways, with the participation of the U. S. Bureau of Public Roads. Merritt-Chapman & Scott Corp., New York City, is the contractor.

Are You Having Compaction Problems?

BACKFILL SINKING? SLABS CRACKING? ... Eliminate with a Terrapac Vibratory Compactor!

**IMPACT FORCE
2300 LBS.**



**IMPACT FORCE
3-1/3 TONS**



TERRAPAC CM-15

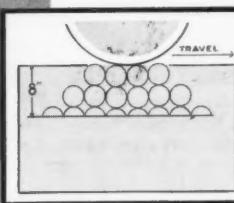
TERRAPAC CM-20

Small, self-propelled, one-man operated, heavy-duty vibratory tampers now enable you to really compact crushed stone, sand, gravel, etc. without bringing in 10-20 ton static rollers. . . . They are also ideal for small asphalt jobs including patch work. . . . The CM-15 will compact lifts up to 12 inches, while the CM-20 penetrates up to 30 inches—in one or two passes. . . . Prove it to yourself—on your own job. . . . To arrange a demonstration, contact your local Vibro-Plus distributor or write to us direct.

Ad 41-57

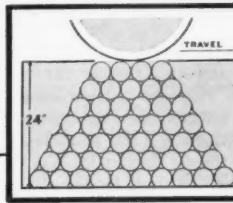
SPECIFICATIONS

	Impact	Frequency VPM	Travel Speed	Weight
CM-15	2300 lbs.	2350	up to 55' per min.	242 lbs.
CM-20	6600 lbs.	2000	up to 75' per min.	950 lbs.



CONVENTIONAL STATIC COMPACTION

Static rollers, relying on weight alone, produce friction forces between soil particles causing bridges to form. Terrapacs break bridges for deep compaction.



TERRAPAC DYNAMIC COMPACTION

Vibratory energy breaks frictional forces binding soil particles together, allows soil to sift down producing uniform densities at greater depths.



VIBRO-PLUS PRODUCTS, Inc.

STANHOPE, NEW JERSEY

WORLD'S LEADING MANUFACTURER OF VIBRATORY EQUIPMENT FOR OVER TWO DECADES!

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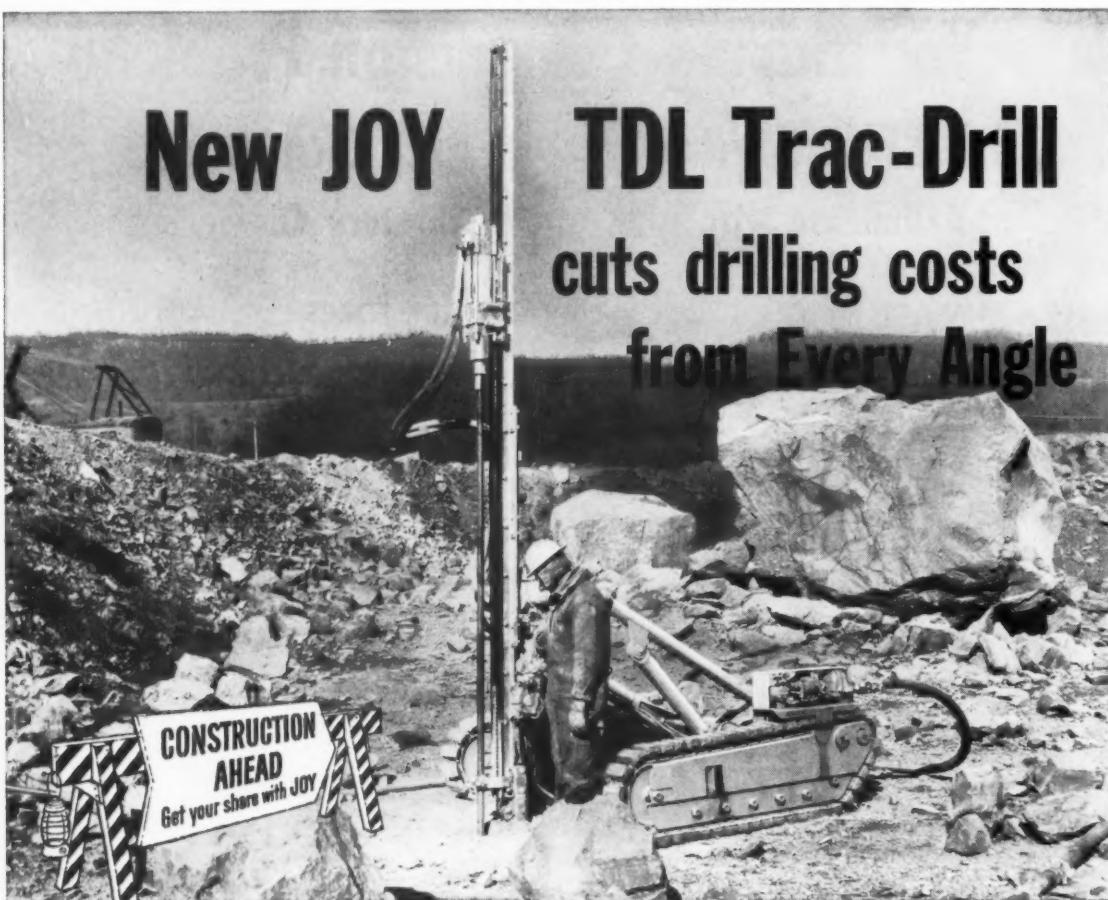
Floodway channel dug in dry as pump setup diverts flow

Contractor also digs diversion channels to handle water; rains create problems on widening and improvement job

A battery of four Jaeger 10-inch pumps eliminates the need for excavating a diversion channel through this hill during improvement work on the floodway channel in Houston. Each pump can handle 40,000 gpm. Three, driven by International diesel engines, and this arrangement of Armco pipe were usually used to handle the flow of the bayou.



New JOY TDL Trac-Drill cuts drilling costs from Every Angle



... more versatility, more economy, more dependability

The TDL is a new lightweight, self-propelled drill chassis accommodating a wide range of Joy drifter drills. You can choose the best combination for your production needs, available air supply and budget requirements.

The TDL chassis mounts any one of 5 famous Joy Silver Streak Drifter Drills—making it possible to drill blast holes 1 1/4" to 4" in diameter, 18' to 40' in depth. You select a unit that matches your compressor—for TDL drill combinations give you a range from 250 to 600 c.f.m. THAT'S VERSATILITY.

The TDL has built-in strength that gives excellent drill stability for quick hole spotting even in rough terrain. Practical, simple design permits fast, easy maintenance and keeps downtime to a minimum. THAT'S ECONOMY.

The Joy TDL is made right, built rugged and has powerful Joy Pistonair motors for ample tramping speed and power for any job. It has been proven on rough jobs. THAT'S DEPENDABILITY.

There's more to the story... write for the name of your nearest Joy Distributor. He'll show you why the Joy TDL Trac-Drill is your best buy—and how you'll get your share of the CONSTRUCTION AHEAD... with Joy Construction Equipment. Write Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa. In Canada: Joy Manufacturing Company (Canada) Limited, Galt, Ontario.

JOY

Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.
EQUIPMENT FOR CONSTRUCTION

PORTABLE AND SEMI-PORTABLE AIR COMPRESSORS • ROCK DRILLS • TRAC-DRILLS • DRILL BITS • BACKFILL TAMPERS • SPADERS
PAVING BREAKERS • SHEETING DRIVERS • DRIFTERS • PORTABLE HOISTS • FANS AND BLOWERS • PORTABLE SAFETY LIGHTING

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The teamwork of the new Joy Trac-Drill and the reliable Joy Airvane Rotary Compressor cuts blasthole costs to minimum. Joy Rotary Portable from 125 cfm through 900 cfm.

Write for Free Bulletin, 238-21

In excavating to improve Brays Bayou floodway channel in Houston, Texas, C & O Construction Co., Fort Worth, sometimes cut a trench to divert water so that equipment could work in the dry. If the ground was too high, the company used an unusual pumping setup to divert the water. In other sections, draglines widened and deepened the existing bayou as it carried a normal flow of water.

But whether equipment worked in the wet or in the dry, the contractor always had to keep one eye on the weather reports and the other eye on the rising flow of the bayou. When the flow approached a critical level, equipment had to move out of the channel area in a hurry. Temporary earth cofferdams had to be knocked out to allow the flood waters to tear through the excavation being done in the dry. It was a costly procedure, but one that frequently had to be followed during the period of heavy rains.

An unusual pumping setup was used to handle the normal flow of water in the temporary diversion channels. Often, the diversion channels cut across a promontory at a bend in the bayou. To lift the water up over the promontory, the contractor used a battery of pumps capable of handling 160,000 gpm. The four Jaeger 10-inch pumps allowed C & O to select shorter routes for the diversion channels, and they saved the contractor from cutting a deep trench through the promontory.

Part of larger job

The 4.7-mile contract held by C & O is part of an over-all plan to improve some 26 miles of Brays Bayou. The straightened and enlarged channel will provide adequate flood protection for a large part of the city of Houston as well as certain sections of Harris County. The channel begins at Chimney Rock Road, southwest of the city, and flows easterly to its outlet in the Houston Ship Channel. Along most of its route, the channel flows through built-up residential sections.

The improvement of Brays Bayou is part of a \$62 million comprehensive flood-control plan for Harris County being developed jointly by the Harris County Flood Control Authority and the U. S. Army Corps of Engineers. Supervising the construction



In a section where the channel is being relocated, an Allis-Chalmers HD-21 tractor with dozer fills in the old channel. Total fill amounted to some 600,000 cubic yards.

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INEERS

At the lower end of the
relocated section, where
the diversion trench was
used, a Bay City Model
45 crane cleans out mud
from the bottom of the
original channel. The cul-
verts at left allow traffic
to cross the lower end of
the diversion trench. ►



of the Brays Bayou project is the
Corps' Galveston District.

Certain sections of the channel are
lined with concrete, such as the 2-
mile stretch completed last summer
between Stella Link Road and Main
Street in Houston.

C & O's \$1,878,000 contract does
not call for a concrete lining. The
work is primarily enlarging and, at
times, straightening out the winding
course of the lower end of Brays
Bayou.

The widths of the channel bottom
vary from 40 feet on the upper end to
80 feet at the lower end. The depth
averages about 25 feet, and the sides
rise on a 3 to 1 slope.

The 4.7-mile stretch runs from
Lidstone Road to the Houston Ship
Channel. Along this section, the bayou
passes under the Gulf Freeway, bor-
ders a private golf course, and winds
its way through Mason Park. While
clearing the route, construction crews
encountered everything from modern
ranch houses to dense jungles. Haz-
ards included everything from flying
golf balls to deadly water moccasins.

C & O started to move the 1.8 mil-
lion cubic yards of dirt in March,
1957. One of the first stretches tackled
was a channel change near Lidstone
Road at the upper end of the job.
Since it was planned to excavate this
section in the dry, the first step was
to dig a diversion channel to carry
the normal flow of the bayou.

The shortest and most convenient
route for the diversion channel was
across the top of the "U" formed by
the bend in the bayou. This involved
either going over or through a sizable
hill. The superintendent decided to go
over it.

With a battery of four Jaeger 10-
inch pumps, it was possible to lift the
water about 20 feet and dump it into
an open trench on the crest of the
hill. The trench carried the water
back to the bayou at a point below
the excavation. The pumps, powered
by International diesel engines, each
had a capacity of 40,000 gpm. Nor-
mally, three pumps were kept in op-
eration to handle the flow of the
bayou.

The pumps were located on the
hillside out of the reach of high water.
When the flow of the creek became
(Continued on next page)

For draglines, shovels, scrapers,
bulldozers—you can't beat Tiger
Brand Wire Rope for long, low-
cost service.

Changing the face of the nation's highways



with the help of Tiger Brand Wire Rope

On most of the big highway jobs, Tiger Brand
Wire Rope is doing the heavy work. It supplies
the steel "muscles" for shovels, draglines,
scrapers and other earth-moving equipment.

Contractors are large users of Tiger Brand
Wire Rope because this rugged steel rope lasts
longer, moves more materials, and gets the job
done quicker at less cost. Its Excellay Pre-
formed construction makes it easy to handle...
quick to install. It has less tendency to loop,
kink or whip... and it offers highest resistance
to bending fatigue.

Tiger Brand gives long, trouble-free service
because it's made from the best possible steel.
From ore to finished product, every step of pro-
duction is rigidly controlled to guarantee top
quality. And the rope is engineered to fit the job
—engineered by one of the finest staffs in the
country, and backed by the basic research of the
United States Steel Corporation. Next time you
need wire rope, rig up with Tiger Brand. It will
keep your machines on the job. American Steel
& Wire Division, Rockefeller Building, Cleve-
land 13, Ohio.

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For more facts, use Request Card at page 18 and circle No. 270



This Cat D8, one of several tractors on the 65-acre clearing job, piles up trees for burning. Wet ground, which at times bogged down the tractors, combined with semitropical vegetation to make this job rough.

Hard clay has to be worked to fill in the old channel, and the frequent rains during part of the job did not make the operation easier. Churning through the heavy material is an Allis-Chalmers HD-21.

too much for the pumps to handle, it was necessary to knock out the earth cofferdams that had been built across the original channel.

Draglines and scrapers move dirt

To cut down to the 40-foot-wide bottom of the channel, the contractor used a combination of scrapers and draglines. Four Euclid S-18 scrapers worked—when there was room—along the upper sides of the cut. Most of the excavation, however, was handled by six draglines. These 2 and 3-yard rigs loaded into either LeTourneau-Western Model C Tournapulls with rear-dumps, or Euclid bottom-dumps.

As many as 11 dozers assisted in the dirt moving. This fleet of International, Allis-Chalmers, and Caterpillar tractors with dozers were kept busy filling in the old channel, push-loading scrapers, and smoothing out the spoil banks. Normally, the excavated sand and clay was wasted in spoil banks which were leveled off to give the channel a better appearance. Only about 600,000 cubic yards of dirt was used for fill.

On the straight sections, where the new channel followed the course of the bayou, no dewatering was necessary. The draglines worked from the bank, and cast either into Euclid bottom-dumps or directly to a spoil area.

Clearing

Clearing the 65 acres required by the enlarged channel was no small job. Much of the area along the banks of the river had grown up into a jungle containing trees as large as three feet in diameter. The continual rains made the ground wet and soggy and a hazard to track equipment.

In spite of these difficulties, four Caterpillar D8 tractors wasted little time in pushing through the dense growth. The tractors worked in teams of two on different sections of the bayou. One D8, equipped with a dozer blade, pushed the trees down. The other D8, equipped with a rake, worked the trees and underbrush into piles to be burned. All the tractors were equipped with protective cages for the operators.

Personnel

Ed Copp is superintendent for C & O Construction Co., and his dirt



5 men can install a drainage structure

like this in 2 days! A big 72" diameter USS AmBridge Sectional Plate Pipe 60' long can be erected on the job and backfilled ready for use in **two days**, with a five-man crew using simple hoisting equipment and standard hand tools. *You just can't build 'em as fast with other materials.*

Another important advantage is that the structure can be used immediately after backfilling. Traffic interruptions are held to a minimum. In some instances, structures can be erected on the bank of a stream and lifted or rolled in.

No forms needed . . .

no breakage! USS AmBridge Sectional Plate Pipe, Pipe-Arches and Arches eliminate the need for forms . . . and, being made of steel, there is no breakage. They are permanent . . . they can be extended whenever a fill or road is widened. Fabricated to meet all federal and state specifications, they are available in a complete range of standard sizes to satisfy the design requirements for any waterway opening.

FOR A FREE COPY of our 28-page AmBridge Sectional Plate catalog, write direct to our Pittsburgh office. For information on smaller drainage structures made from USS Galvanized Corrugated Culvert Sheets, please send your inquiry to United States Steel, Room 2801, 525 William Penn Place, Pittsburgh, Pa.



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build more roads

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United States Steel Export Company, New York

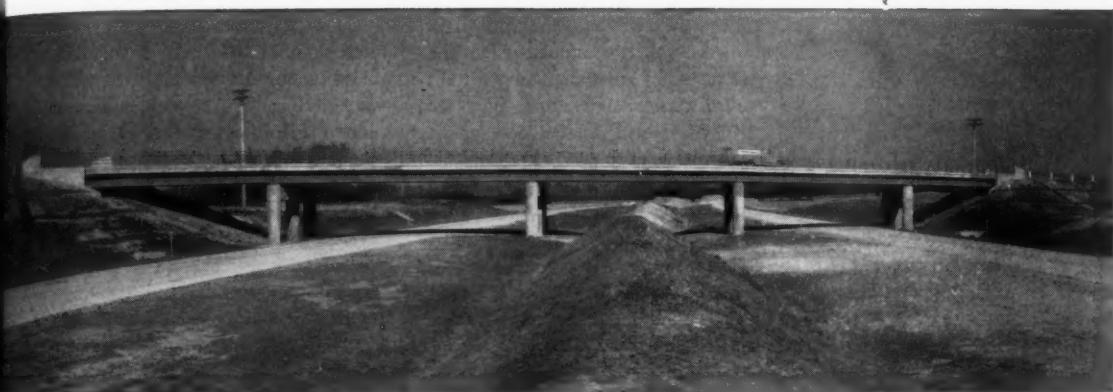
foremen are Clyde Johnson and Lloyd Ottinger.

The project is under the supervision of the Galveston District. When work began, Col. W. P. McCrone was district engineer at Galveston; Col. E. A. Hansen, present district engineer, will see the work to completion. Chester L. Pawlik is the resident engineer, and Frank L. Smith is the chief inspector.

THE END

The chairman of the Transport Committee of the American Association of State Highway Officials has named five members to review AASHO policy on sizes and weights.

THE FINISHING TOUCHES to the final grading work at the site of a \$4 million reinforced-concrete filter plant in Charlotte, N. C., are made by an International Drott TD-9 Four-in-One. The new plant will have a capacity of 12 million gallons of water per day. Rea Construction Co., Pittsburgh, Pa., the prime contractor, will complete the project this month.



Steel bridge erected in 7 working days! The 320' long Evans Center-Eden Road Bridge on the New York Thruway contains 175 tons of structural steel fabricated and erected by American Bridge. Three of its five beam spans are 74'

9 1/8" long. This is another example of the time- and money-saving advantages of building with steel. Steel also saves freight costs and storage space. Steel can be erected in any season. Steel can be accurately inspected at any time.



AmBridge I-Beam-Lok saves money on erection and maintenance. This lightweight, long-life flooring for modern traffic is available in units 6' 2" wide and up to 49' long. With a full 5" depth, it can be applied directly to stringers on spans up to 4' centers to permit H-20 loadings. It does not

require secondary supports. Ease and speed of installation minimize traffic interruptions. Shown here in open-type, it is also available in units ready to be filled with concrete. For detailed information, ask for free copy of 32-page catalog. Covers advantages, specifications and installation.

USS, AmBridge and I-Beam-Lok are registered trademarks

anBridge helps you adore the money!

American Bridge
Division of  **United States Steel**

For more facts, use Request Card at page 16 and circle No. 271

MAY, 1958

ham
eapolis

GINEERS

Rockwell Spring acquires Aero Design & Engineering

Aero Design & Engineering Co., Bethany, Okla., has reached an agreement with Rockwell Spring & Axle Co., Coraopolis, Pa., to establish the aircraft manufacturer, Aero Design, as a subsidiary of the Pennsylvania firm. The agreement also provides for the maintenance of a separate corporate entity for Aero Design, and it was contemplated that the existing management group would remain in charge.

The acquisition is to be accomplished by an exchange of stock, whereby shareholders of Aero receive an interest in Rockwell stock and Rockwell acquires Aero as an operating subsidiary.

New Athey representative to cover two regions

James A. Irwin, a former general line salesman for a Philadelphia heavy-equipment dealer, is the new district representative for the Northwest and Southwest regions of Athey Products Corp.

Irwin takes the place of Guy F. Roll, who is now in the Chicago Athey office as domestic sales manager.

Irwin served as a mining and industrial representative for Pittsburgh Screw & Bolt Corp. before re-entering the U. S. Army for service in Korea in 1950. On his return, he worked as a salesman for Giles & Ransome, a Philadelphia distributor of construction machinery.

B-E drill division moved

The Bucyrus-Erie Co. has transferred most of its drill division activities from the South Milwaukee plant to its new facilities in Richmond, Ind. The South Milwaukee plant has discontinued stocking and mounting drills, parts service, and bit dressing, but will continue repair service for tools. Space formerly used for drill manufacturing at the South Milwaukee and Evansville, Ind., plants is now being utilized for the production of excavators.

Theew merges with Byers

The Theew Shovel Co., Lorain, Ohio, producers of Lorain power shovels and cranes, has merged with Byers Machine, Inc., its wholly-owned subsidiary.

Fast-moving spread lays cement-treated rock base

Bulk cement is spread on windrow of crushed aggregate, permitting traveling mixer to produce base course

by RALPH MONSON
field editor



A fast job of building a cement-treated base on State Route 11 in Washington gets rolling as cement is applied to a windrow of aggregate. A White diesel truck pulls the Pettibone Wood cement bulker, but on grades a Cat No. 12 motor grader does the job.



Cement being metered out of the Pettibone Wood spreader goes into a groove formed in the windrow by the metering device. A bottom screw carries cement to the rear of the spreader. Four per cent, by weight, of cement is being added to the stone.

Placed by a traveling mixing plant, a spread which combined a few special pieces of equipment and a number of standard machines built five miles of cement-treated base on the Hatton Coulee to Lind Coulee section of State Highway 11 between Lind and Hatton in Washington. Two 1½-inch lifts of hot-mix bituminous surfacing completed the paving of this section.

Cement-treated base for bituminous pavements is proving very popular in Washington, where the Department of Highways has been using the method on all classes of roads from secondary state highways to the interstate freeways. Contractors mix and place the base course in a number of ways, some of them using the travel-plant process which was employed by L. W. Vail Co., Pasco, Wash., on this job.

The section of road had been graded under a previous separate contract, and Vail, after truing up the bad spots, placed a 2-inch lift of crushed-rock subbase. This material was dumped on the roadway from trucks, watered, bladed to shape, and rolled with a 3-wheel roller. The result was a smooth, solid surface for equipment placing the cement-treated base.

The base was built to a width of 23 feet and placed in a single course for the 6-inch compacted depth. The bituminous pavement was then built in two 1½-inch courses to a width of 22 feet, and the 8-foot-wide shoulders were shaped to match the pavement.

Rock spread on road

The minus ½-inch crushed-rock material for the cement-treated base was produced and stockpiled near one end of the project. This aggregate was high in fines, the specifications requiring 13 to 36 per cent passing the No. 40 screen.

A Hough MM Payloader loaded the rock from the stockpile to a fleet of six Ford dump trucks which hauled to the road. Each load was weighed, and the loads were carefully distributed to provide the proper volume on the road. A Pettibone Wood spreader pulled by a Caterpillar D8 tractor shaped this material into a measured windrow containing just the proper amount of material for a half-width of the base course.

Applying cement

Cement was delivered by truck transport. Taking advantage of a roadside cut location, the contractor rigged up a simple and efficient transfer plant for getting cement from the transports to the bulk distributor. The transports unloaded at the high level onto a belt leading to a 200-barrel storage bin. Another belt carried the cement from the bin to the distributor on the roadway below.

This rig was a Pettibone Wood cement bulker with a capacity of 70 to 80 barrels. The semitrailer bulker was pulled by a White diesel truck. Cement feeds to the rear of the rig by a bottom screw and then is metered out into a groove formed in the windrow by the metering device that was



As cement is applied, the wing blades of a Pettibone Wood Model 54 Roadmixer gather the aggregates and feed them to a pugmill mixer, where the proper amount of water is added for mixing. Pulled by a Cat D8 tractor, the Roadmixer tows a 3,500-gallon tank trailer.

located on the rear of the bulker.

With the rig straddling the windrow, the combination of the big load and loose footing sometimes took more traction than the truck could develop—especially on upgrades. A Caterpillar No. 12 motor grader was usually attached to the front of the truck, so that the rig was always able to move along at the required uniform rate to insure proper distribution of the cement. On this job, 4 per cent, by weight, of cement was added to the base aggregates.

Traveling mixer

Closely following the application of cement, a Pettibone Wood Model 54 Roadmixer, pulled by a D8, mixed the rock and cement and added the required amount of water. It towed a 3,500-gallon tank-trailer carrying the water. This water tank was kept supplied by a 5,500-gallon water transport, which was sometimes assisted by another nurse truck with a 1,500-gallon tank.

The Roadmixer, together with the tractor and water tank, straddled the windrow. Two wing blades on the Roadmixer gathered in the base materials and fed them into a pugmill mixer, where a metered amount of water was added during the mixing. The mixed material flowed out the rear into a windrow as the machine moved ahead.

Spreading the windrow over half the base and shaping it to the proper grade and crown was a relatively simple job for the Cat grader with Preco

automatic blade control. In a very few passes, this machine had the outer edge matching the grade stakes, while the automatic blade control assured the operator he was getting the proper crown.

Compacting the entire 6-inch depth of the base in one course, a Lima Roadpacker easily kept pace with the rest of the operation. The six vibrating shoes of the Roadpacker, each 2 feet wide, easily covered half the width of the roadway in a single pass. This machine made four passes to complete initial consolidation of the material.

A fine spray of water, applied after the initial compaction by a specially equipped water truck, compensated for evaporation from the surface. This Ford truck with a 1,200-gallon tank had a shop-made spraybar fitted with four spray nozzles of the type ordinarily used on bituminous distributors. With water pressure supplied by a Novo pump, these nozzles produced a very fine spray which was well distributed as the truck moved along. Final shaping to grade was done by the grader. Final compaction was achieved by a Galion 10-ton 3-wheel roller.

Specifications required a minimum density of 95 per cent, and this was not difficult to obtain with the compaction methods used. Department of Highways inspectors made regular field density checks with a Washington Densometer, at the completion of the rolling operation.

(Continued on next page)



The mixed material is laid out over half the width of the roadway and brought to grade by this Cat No. 12 grader with Preco electronic blade control. The operator obtains the grade for the crown in a minimum number of passes.



After the base course has been laid out by a motor grader, a Lima Roadpacker handles initial compaction. The rig, with six vibrating shoes, each 2 feet wide, easily covers half the width of the roadway in a single pass.



Water is applied to the road by a spraybar on a Ford truck. Four nozzles, similar to those on asphalt distributors, spray a fine mist that covers the road and compensates for evaporation. Water is pumped by the Novo pump beside the 1,200-gallon tank.



Final compaction is applied by a Galion 10-ton 3-wheel roller. This is the last operation before the surface of the base is sealed with emulsified asphalt for a 4-day curing period. Following this, the asphaltic-concrete surface will be laid.



Washington State Highway Department field men make a density check of the compacted material in place with a Washington Densometer to make sure the 95 per cent density has been attained.



The 36-inch x 12-foot apron feeder, right, starts quarry rock through the setup producing base-course material. Initial crushing is done by a Universal 20x36 jaw crusher. A conveyor leads to the Cedarapids 4x12-foot 2-deck screen that separates oversize for secondary crushers.



This roller, hardfaced with Victor alloy, shows practically no wear after crushing 40 tons of rock hourly, 8 hours daily for 30 days.

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Tracy Rock & Gravel Co., Tracy, Calif., crushes 40 tons of rock hourly, prolongs roller life on this rough work by rebuilding with $\frac{1}{4}$ " VICTOR ALLOY #1 Bare Electric rod, 28" length. Says plant superintendent Albert Parker:

"Victor alloy's ease of application and fast buildup mean a lot to us. There is no lost time as we use 28" length rod; when it burns down, we touch a new rod to the old one, and keep on welding without even lifting the helmet."

You, too, can save rod and increase working life of crusher rolls, screens, shovel teeth, tractor rollers and idlers, dredge pumps and many other parts subjected to abrasion and severe impact. Simply hardface with VICTOR ALLOY. It welds to manganese, steel or cast iron. You get all position hardfacing, exceptional arc stability, deposits free of porosity, fast application without slag interference. Try it. Order a supply from your VICTOR dealer TODAY.

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(Continued from preceding page)

Paving

Immediately after completion of the final rolling, the surface of the base was sealed with an application of 0.2 gallon per square yard of SS-1 emulsified asphalt. This seal, which prevents evaporation of the moisture in the base during the curing period, was applied with an Etnyre 1,000-gallon distributor.

After the 4-day curing period, which specifications require before paving can be done, the asphaltic-concrete surfacing was placed. The hot-mix material was produced in a Madsen 3,000-pound batch-type plant. A Michigan 175A loader fed the aggregates to a bunker, and Syntron feeders brought them to a conveyor leading to the dryer.

On the road, the hot-mix was laid by a Barber-Greene finisher and rolled by two Galion 10-ton Roll-O-Matics.

Aggregate production

Production of the 85,000 tons of aggregate for the cement-treated base and for the bituminous surfacing was done on the site by a subcontractor, F. H. DeAtley Co., Lewiston, Idaho. The quarry and crushing setup were located near Lind at the north end of the project.

Rock in the quarry was drilled with a Gardner-Denver 5-inch drill and shot with ammonium nitrate. A Koehring Model 304 shovel with a $\frac{3}{4}$ -yard dipper loaded the shot rock into trucks, which hauled to the Pioneer 3x12-foot apron feeder supplying the primary crushing unit. The Universal 20x36-inch primary jaw crusher, driven by a Caterpillar D11000 engine, broke up the larger rocks and sent all the material to a long conveyor and the secondary unit.

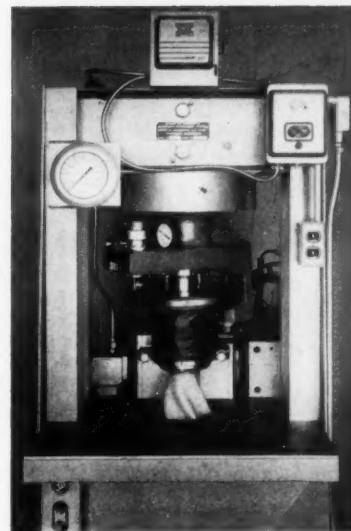
The secondary had a Cedarapids 4x12-foot two-deck screen. Everything was recirculated through this screen until it was reduced to the required minus 1-inch size. Reducing the tough rock to this small size and producing the required amounts of fines, especially in the No. 40 range, required the use of three crushers in the secondary unit.

Smaller oversize material went to a Telsmith 26x30 roll crusher and was recirculated back to the screen.



Secondaries work in tandem. Material from the Telsmith 3-foot cone crusher, left, goes through Pioneer 22x40 rolls before returning to the screen. Smaller oversize goes to a Telsmith 26x30 roll crusher. Finished stone is conveyed to the Cedarapids 15-yard surge bin, right, which feeds a conveyor that loads the trucks.

A GYRATORY LABORATORY kneading compactor, the only one of its kind, is a compaction device for preparing asphalt specimens, closely simulating actual pavement specimens, and for selecting the bitumen content. Designed and constructed at the U.S. Army Corps of Engineers' Waterways Experiment Station, Vicksburg, Miss., the compactor is based on one originally developed by the Texas State Highway Department. The machine shows promise for being useful in making comparative quality tests on pavement mixtures and for predicting the expected life of a pavement.



The larger oversize went first to a Telsmith 3-foot cone crusher and then through a Pioneer 22x40 roll crusher before being returned to the screen.

Finished material passing the screen was conveyed to a Cedarapids 15-yard surge bin, and another conveyor was used to load the material into trucks hauling to stockpiles. Specifications required the material to be stockpiled and rehandled so that the most uniform grading possible was obtained.

To produce the aggregate for the bituminous mixture, the contractor used different screen sizes. The finished material was delivered to a Cedarapids 4x12-foot two-deck screen mounted on top of the surge bins. This screen separated the material into the two sizes for the plantmix operation.

The difficulty in producing the required fines made it important that they be held in the material. To prevent loss from blowing, DeAtley introduced a spray of water into the Telsmith roll and cone crushers. About 2,000 gallons of water, delivered to the plant each shift by a tank truck, was fed by gravity to the crushers. This resulted in an unusually dust-free crushing operation.

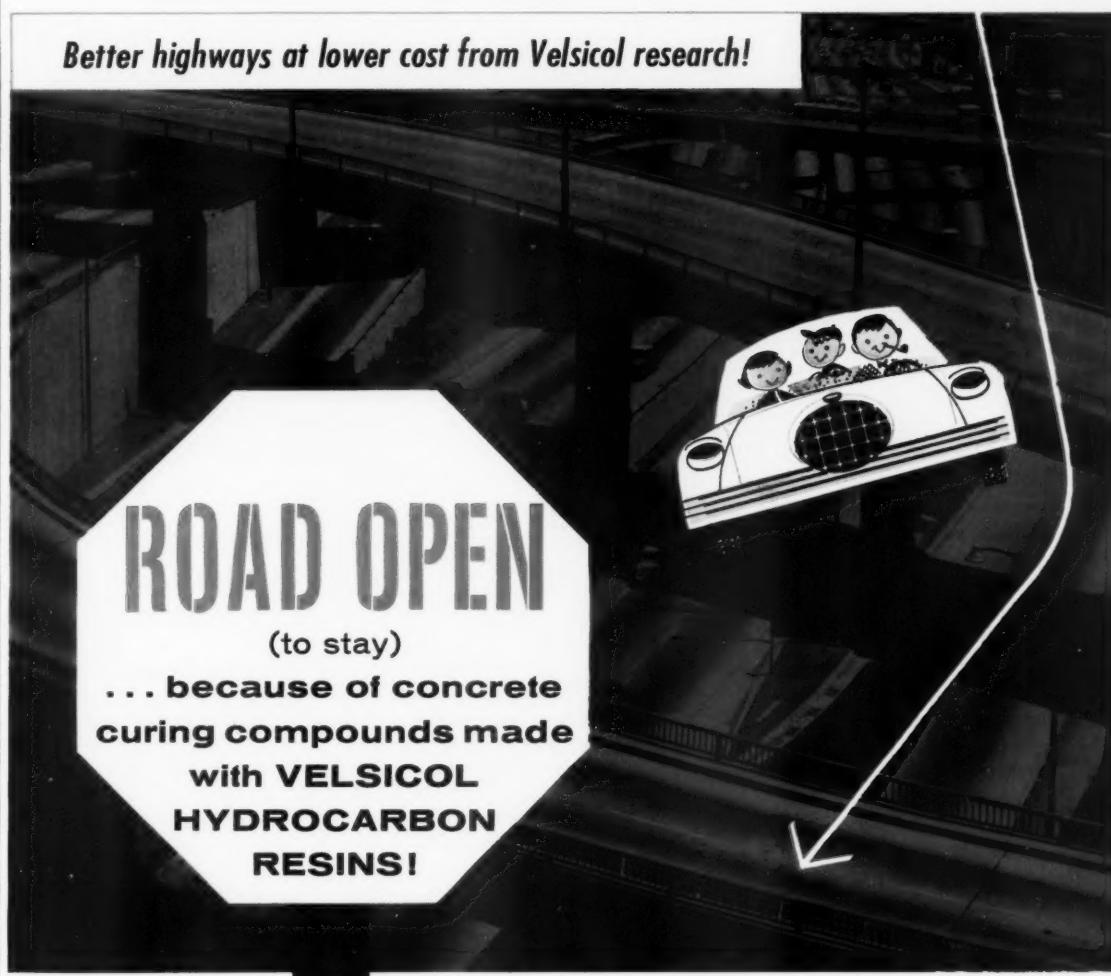
Power for the setup—with the exception of the primary crusher—was supplied by two Caterpillar D13000 generator sets rated at 75 kw each and a General Motors 6-110 generator set rated at 100 kw. The plant produced as much as 1,000 tons per 9-hour shift in spite of the hard rock and fine finished size.

The resident engineer for the Washington Department of Highways on the project was John Whilt. He worked out of the Spokane district office, which is headed by district engineer D. E. Stein. The construction engineer for the department is E. C. Simpson. The director of highways for the state of Washington is W. A. Bugge.

Supervising the operation for L. W. Vail Co. was general superintendent Gene Hill. The superintendent of the asphalt plant was Gene Heney. The master mechanic was C. C. Curry. Superintendent for F. H. DeAtley Co. on the rock production was Francis Nogle.

THE END

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Scrapers travel steep grades to build big earth dikes

Powerful earthmoving teams kept tough clay moving swiftly to build the artificial lakes for the Aluminum Co. of America's alumina plant near Port Lavaca, Texas.

In some cases, a train of three Euclid TC-12 push-dozer drove the 30-yard scraper bowl of an M-R-S 200 through the rubbery clay to bite out a capacity load. Cutting through the stubborn material usually required two pushers working in tandem behind the scraper.

The M-R-S rigs picked up 30-yard loads at the bottom of the reservoir, climbed steep 10 per cent exit ramps, and dumped the material on top of the enclosing dikes. By cutting down on loading time, and making good speed on the ramps, an M-R-S was able to make 100 loads in a 10-hour day.

The building of the artificial lakes, being done by Harrison Construction Co., Pittsburgh, Pa., is only a part of the construction of a \$45 million plant by the Aluminum Co. of America. This plant, which will produce more than 500,000 tons of alumina per year, is located next to the company's primary aluminum smelter at Point Comfort on the Texas gulf coast. The four separate lakes, or reservoirs, grouped together with some common sides, will be used to store and clarify water necessary for the wet chemical process of the alumina plant.

When the new plant is completed, Alcoa will receive raw bauxite ore, which will be refined to produce the alumina, a white powder. This will go on to the smelter to become metallic aluminum, which will be made into ingots.

The bauxite ore will arrive by ship from South America and the Dominican Republic. This makes a deep-draft ship channel and an unloading dock necessary for the new facilities. Construction of the 38-foot-deep channel, which will be done under the supervision of the U. S. Army Corps of Engineers, is awaiting federal legislation.

Plant-site grading

The first grading operation involved the moving of about a million cubic yards on the actual plant site. Waste dirt was used to fill in and straighten out the irregular frontage along the bay. Suitable material not needed for site grading was hauled about half a mile to start the dikes on the artificial lakes. Since the land in the area is fairly level, the cuts were



"A-W Super 99 is the best machine on the market"

says Leo Russell, Russell Industries, Inc.

Russell Industries, Inc., Presto, Pa., asphalt paving contractor, specializes in building roads and parking lots. The company added another Austin-Western grader, a Super 99, to the team in June 1957—has three A-W graders now.

Leo Russell informs us: "We compared the new A-W Super 99

with other competitive graders and believe that it is the best machine on the market. It is excellent for leveling slag, does a faster job, and is easy to maintain. The all-wheel drive is an outstanding feature, and we also like the way you can grade curves without backtracking. Another thing that is very important is the

fine service we get from our local A-W distributor. We've always been able to get good delivery on parts we've needed."

Operator William H. Westfall says: "I've been operating graders for almost 30 years and consider the A-W Super 99 far superior to any other make. It's extremely man-

Spread of 30-yard scrapers, aided by three dozers, cuts through tough clay to build artificial lakes

Tough clay makes it necessary for a train of three Euclid TC-12 in pushers to help big 30-yard-capacity scrapers during excavation of one of the four reservoirs for the Aluminum Co. of America's alumina plant near Port Lavaca, Texas.

Up a steep 10 per cent grade comes a loaded M-R-S 200 with a 30-yard-plus load. In the background are the partially completed embankments of the reservoir. ►



seldom greater than several feet.

Artificial lakes

With the completion of the plant-site grading, the contractor was ready to start moving the 3.5 million yards of dirt to build the artificial lakes.

Two of the lakes are entirely in cut, and the remaining two are partially in cut, with the upper level surrounded by earth dikes. Raw Water Lake, the largest of the four, is bordered on two sides by "cut" lakes, one of them 10 feet deep, the other 27 feet deep. Material from these cuts was used to build a large part of the 60-foot-high dike surrounding Raw Water Lake. This big man-made lake is 1,700 feet wide and 2,800 feet long. It is 73 feet from the top of the dike to the bottom of the reservoir.

Earthmoving operations

In the early stages of the earthmoving, Harrison kept a powerful fleet of equipment operating 24 hours a day. Working in the cut section of the reservoirs were 7 M-R-S scrapers of 30-yard capacity. These were supplemented by four Euclid S-18 and two Euclid 23TDT scrapers. Supplying the big push necessary to cut through the tough clay were four Euclid TC-12 "twins", two Caterpillar D9 dozers, and one Allis-Chalmers HD-21 push-dozer.

The nature of the material made loading difficult. Near the top of the cut was a layer of rubbery black gumbo. Below this there was predominantly tough clay with some sand and caliche at lower elevations. Often it required three Euclid TC-12's, having an aggregate horsepower of 1,308, to load the M-R-S rigs. Normally, two pushers were used.

As the cuts became deeper and the dikes higher, it was necessary to build ramps angling up the side of the slope so that dirt could be hauled. On Raw Water Lake, the contractor made use of two exit ramps built on 10 per cent grade; two return ramps on 20 per cent grade were used by the empty scrapers.

When cutting out the 13 feet of dirt at the bottom of Raw Water Lake, the loaded scrapers pulled up the steep ramp, and emptied the dirt on the top section of the dike. Caterpillar D8 dozers spread the material in 6-inch lifts. The fill was wetted when necessary, and brought to 90 per cent compaction by two Caterpillar D8 dozers each pulling two Tampo double-drum sheepfoot rollers.



A-W Super 99 Grader, owned by Russell Industries, Inc., shown spreading slag on parking lot project in Irwin, Pa. William H. Westfall is the operator.

verable, and no other grader can match the traction you get with all-wheel drive. The A-W will do any job any other grader will do and do it quicker, besides being a lot easier on the operator. Hydraulic controls let you do a more precise job than

mechanical controls, and you don't get the 'kicking' that tires you out. With the torque converter and standard transmission, you have perfect control downgrade as well as up. Another reason why I like the A-W is the way you can go from grading

to back sloping or ditching without leaving your seat and making special adjustments."

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On the reservoir fill, the M-R-S 200 dumps material for the next 6-inch lift. Lifts are compacted to a density of 90 per cent. The empty scraper will head back to the reservoir on a ramp with a 20 per cent grade.

ers. A total of five Cat No. 12 motor graders was used on the fill and to shape the slopes.

Relentless rains during the latter part of the job made lakes out of the excavation and mud out of the fill, and for many days kept the operation at a standstill. During the rainy months an earth dam was also built to control Cox's Creek, which feeds the lakes. The 5,100-foot dam, rising 20 feet above tidewater level, was built by Exco, Inc., of Houston, working under subcontract from Harrison. The greater part of the 474,000 cubic yards of excavation was used to build up the dam, while about 150,000 yards of the excavation went into one of the lake dikes.

Personnel

Supervising the construction of the new plant for Alcoa were C. H. Keefer, construction superintendent, and Robert A. Seyle, assistant construction superintendent.

For Harrison Construction Co., R. C. Biddle was project manager; Rufus Neff, superintendent; and Keith Bryan, engineer.

THE END

Pennsylvania pike starts maintenance program

A spring and summer maintenance program has been started on the Pennsylvania Turnpike. The program is designed to avoid a recurrence of roadway deficiencies caused by the severe winter.

A very small portion of the 110-mile Northeastern Extension of the turnpike has bumps caused by frost heaves, that resulted from the freezing and thawing of excess moisture under the roadway pavement. These will be repaired as soon as possible.

Sika Chemical opens New Orleans office

Sika Chemical Corp., Passaic, N. J., maker of concrete additives, has opened its ninth district office in New Orleans, La. Located at 750 Robert E. Lee Blvd., the new office will serve dealers in Baton Rouge and Shreveport, and architects, engineers, and contractors in Louisiana and Mississippi. Harold H. Brown is the district manager.

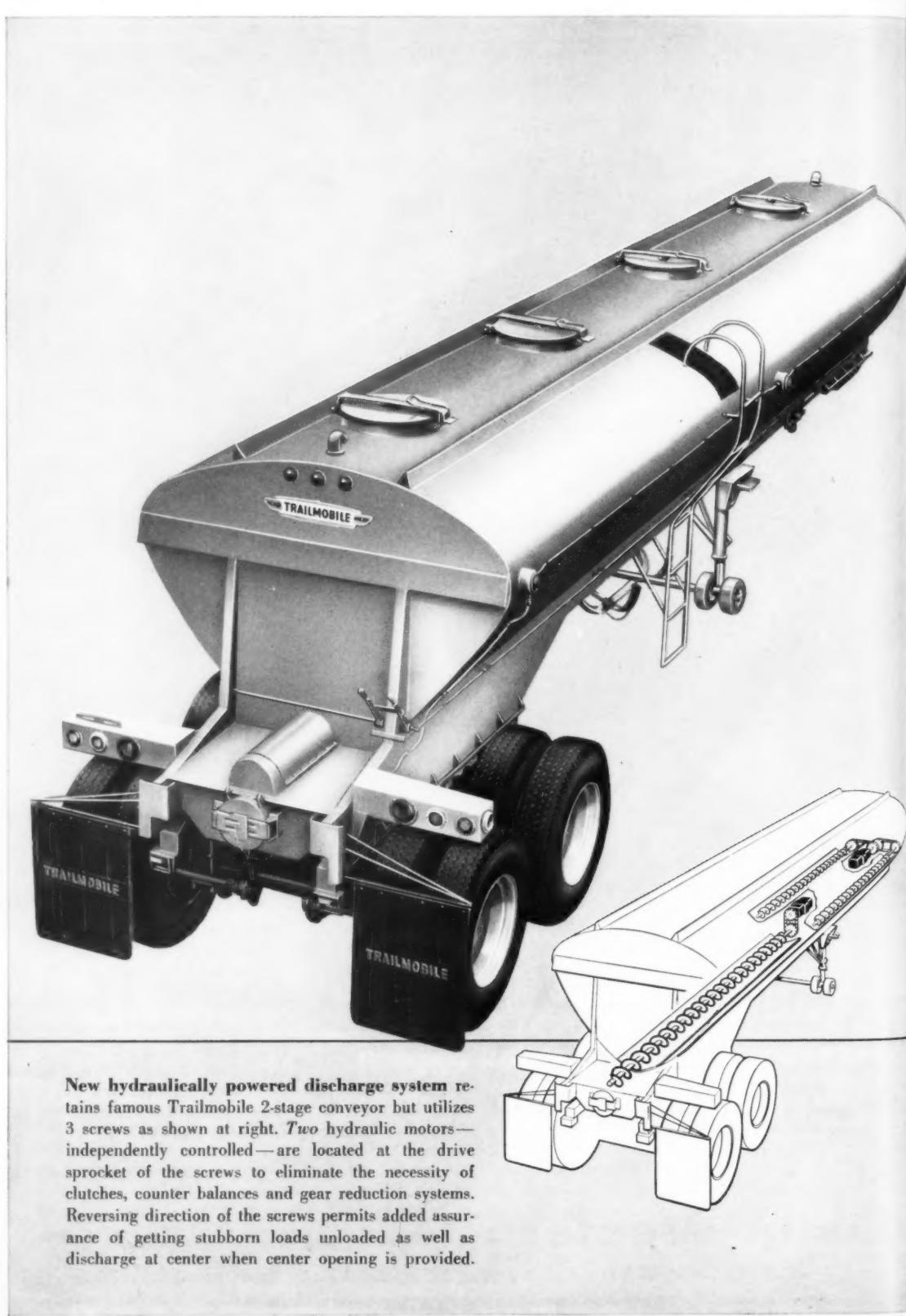
Raymond Concrete Pile awarded job in Iraq

Raymond Concrete Pile Co., New York City firm, has subcontracted to drive more than 3,000 steel-pipe piles for piers and grain-silo foundations in Iraq. Sponsored by the Grain Board of Iraq's Ministry of Economics, the project calls for constructing four large groups of grain silos and pier facilities on the Shatt Al Arab, about 100 miles upstream from the Persian Gulf at Basrah.

Raymond will drive more than 200 16-inch pipe piles, that measure 105 feet long, for a 600-foot-long pier. It will also drive more than 400 10-inch batter piles, that are 110 feet

long, to serve as anchors for a river-front quay. The major part of the job will be driving nearly 2,500 tightly spaced piles for the group of silos. These piles are 20 inches in diameter and 90 feet long. All will be driven in an area only 580 feet long and 100 feet wide.

Since the soil under the silos contains much clay, Raymond plans to pre-excavate each hole before driving. A drill mounted on the side of the pile-driver leads will excavate the hole, while a jet of water, discharging through the center of the bit, will wash cuttings to the surface.



New hydraulically powered discharge system retains famous Trailmobile 2-stage conveyor but utilizes 3 screws as shown at right. Two hydraulic motors—individually controlled—are located at the drive sprocket of the screws to eliminate the necessity of clutches, counter balances and gear reduction systems. Reversing direction of the screws permits added assurance of getting stubborn loads unloaded as well as discharge at center when center opening is provided.

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These two Lima cranes with 1-yard dragline buckets are part of the fleet of five excavating borrow in a high water table area. The crane at left is loading a Mack 15-yard truck. More than 600,000 yards of roadway fill was obtained from pits such as this for a South Carolina road job.

Dragline fleet obtains roadway fill

One of the first controlled-access roads being built in South Carolina required Boyle Construction Co., Inc., Sumter, S.C., to use five borrow pits to obtain over 600,000 cubic yards of roadway fill. This \$861,000 project, a six-mile bypass for U. S. 378 around the city of Sumter, includes everything except the six structures.

Draglines needed

After moving 150,000 cubic yards of roadway excavation with a small scraper fleet, the contractor brought in five cranes equipped with dragline buckets to handle excavation in borrow areas with a high water table. The 35 trucks in the haul fleet had 10 and 15-cubic-yard capacities.

This dragline fleet—including two Lima cranes with 1-yard buckets—excavated trenches within the borrow areas to obtain the fill material. If a scraper operation had been employed, the rigs would have run into trouble when they reached ground water level. Also, haul distances averaged a few miles, and the hauling fleet of trucks proved more economical for the job than scrapers.

THE END

Koehring Co. purchases Clarks Welding Works

The Koehring Co., Milwaukee, Wis., has purchased Clarks Welding Works, Perkins, Calif. The equipment and services of Clarks Welding will enable Koehring's California Division at Stockton to widen its line of specialized construction equipment and concrete batching plants.

Products manufactured by Clarks Welding, and now added to the Koehring line, include heavy-duty diesel engine mufflers, load binders, a portable concrete batching plant, and large water wagons for adding moisture during soil compaction.

Curtis Clark, head of the welding firm, will serve as a vice president of the Koehring California Division, under I. L. Gebhard, president.

McKiernan-Terry division appoints Midwest manager

William H. Guest has been named manager of the Midwest territory of the Pile Hammer Division, McKiernan-Terry Corp., Dover, N. J. From Chicago, Ill., headquarters, he will serve distributors and dealers in the 20-state Midwestern territory bounded by the Gulf Coast and Canada, and including Manitoba.

Six sections—on Machinery, Management, Methods, Maintenance, Men, and Materials—will be featured in next month's efficiency and economy issue.

New Cement Tank Trailer

NEW shape... NEW low weight... NEW hydraulic discharge system

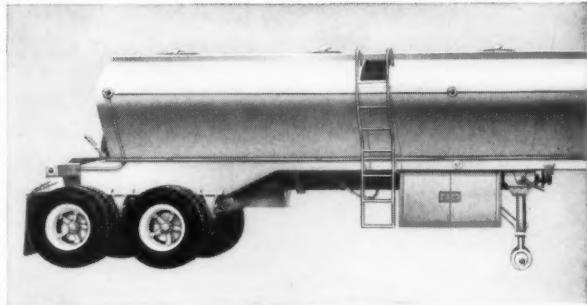
The many innovations offered in this new Trailmobile promise unprecedented advantages to operators.

Its unusually light weight provides for maximum payloads. Its simplified unloading mechanism permits precise control of screw speeds. Its overall design promises a substantial savings in maintenance.

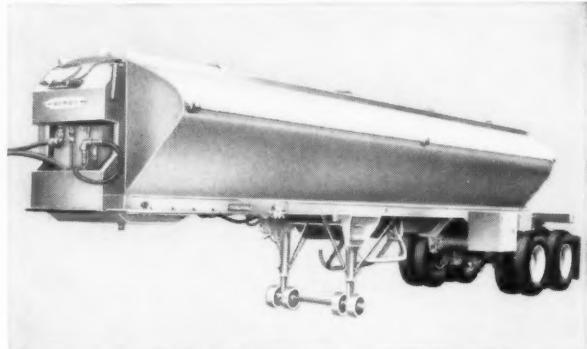
This is a lighter trailer because its vessel has a radically different shape which allows it to support as well as contain the load. It is a more versatile trailer because discharge can be accomplished over a wide range of speeds either at the rear or center of the unit—or both—according to your specifications. And it's a more dependable trailer because of a uniquely simple, close-coupled hydraulically powered discharge mechanism.

Further, you can have all these advantages in either of two types. One utilizes power take-off from the tractor, while the other—a self-contained unit—mounts a gas engine-driven hydraulic pump.

These are only a few of the benefits offered you in this new concept of cement tank trailer design. For the complete story contact your nearest Trailmobile representative or use the coupon.



Self contained unit has gas engine driven pump to energize hydraulic motors. Engine is housed in cabinet at center of unit.



Continuous contour shape plus reinforcing baffles and tension members cut weight without sacrifice of strength. Note the smooth clean lines of this fine trailer.

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City water-main project resembles cross-country job

Laying 24-inch cast-iron pipe for the Oklahoma City water main, crews run into some tough going at Deep Fork Creek. The line has to rise from below the creek bed and run up this bluff on a 50 per cent slope. The crane is excavating the bottom 12 feet of the 18-foot trench from a cut halfway up the slope.

Pipeline crews pushed through rugged terrain to complete some 37.2 miles of trunk water mains in Oklahoma City.

One crew was faced with unusual work within the city limits—crossing a creek at the base of an 80-foot-high rocky bluff. The 24-inch cast-iron pipe had to be laid 5 feet below the creek bottom, then be made to rise abruptly on a slope of about 50 per cent to ascend the steep bluff.

Since the slope was too steep to hold track equipment, a bench had to be cut about halfway up the bluff so that machines could operate. Working from this bench, a 1½-yard backhoe cut out part of the trench on the uphill side. To dig the trench on the lower half of the bluff, the backhoe worked from a fill built across a culvert in the creek. The backhoe was able to dig only about the top 6 feet of the trench. The lower 12 feet of the red sandrock had to be drilled and blasted. The rock was removed by a crane and clamshell working on the bench. After placing a sand blanket at the bottom of the trench, the crane set the lengths of cast-iron pipe in place.

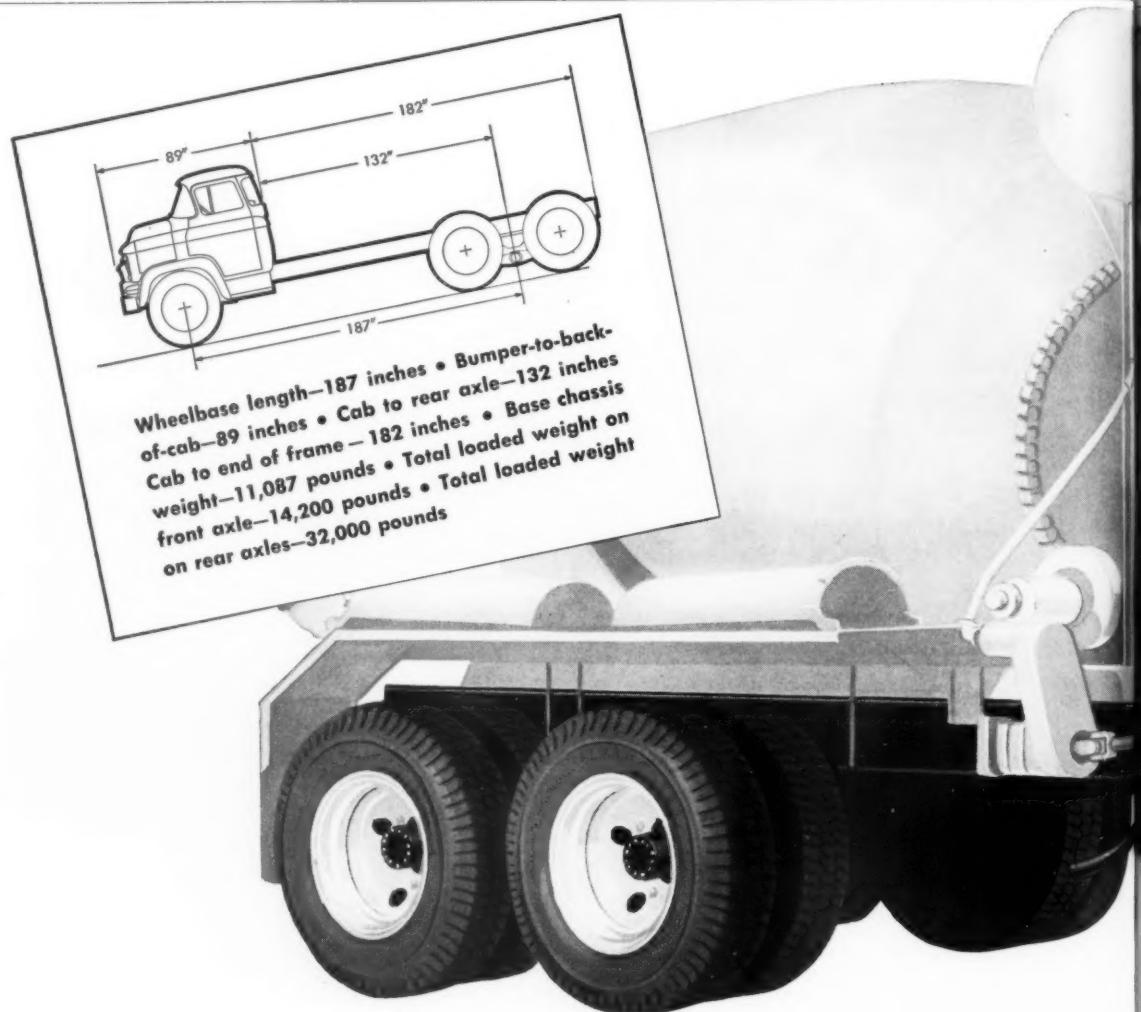
Part of program

This unusual section represented only a small part of the \$3.85 million contract for 30.3 miles of water mains in Oklahoma City. And this \$3.85 million contract, held by a joint venture of M. A. Swatek & Co., B. & M. Construction Corp., and Metropolitan Paving Co., all of Oklahoma City, was only a small part of the tremendous expansion program for the city's water mains and reservoirs.

Three separate bond issues financed the improvements. A \$13.9 million water bond issue allocated \$5.8 million to extending the city's water mains, \$5 million to the development and construction of new reservoirs southeast of the city, and the \$3.85 million joint-venture contract. Also being built under the bond issue is the Atoca Reservoir, located about 108 miles southeast of the city.

Under a second water bond issue, the city completed 6.9 miles of 20 and 24-inch water line to Tinker Field. The same joint venture held the \$671,000 contract for this line. Further contracts for extending the city's

Pipe is laid across a creek, up a bluff, below busy streets as part of Oklahoma City's ambitious water-development program



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GMC's spanking-new FW556 is your truck! For no other regular, in-production model anywhere can haul 7 full yards at a clip—even in states with limitations as low as 46,400-lbs. gross. You see, this rig's all "muscle": with 3/8-inch heat-treated frame rails that eliminate the

need for reinforcement—rubber "biscuit" mounting instead of steel springs—aluminum saddles and wheels.

The pay-off is a vehicle weight of only 11,087 pounds. Add 6,760 lbs. for a lightweight mixer, and you still have room for 28,350 lbs. of payload—all within a 46,200-lb. total.

water mains have been awarded under a third bond issue. The engineering for all the work has been done by the consultant, C. E. Bretz, Oklahoma City, who designed the project and is supervising construction.

Variety of conditions

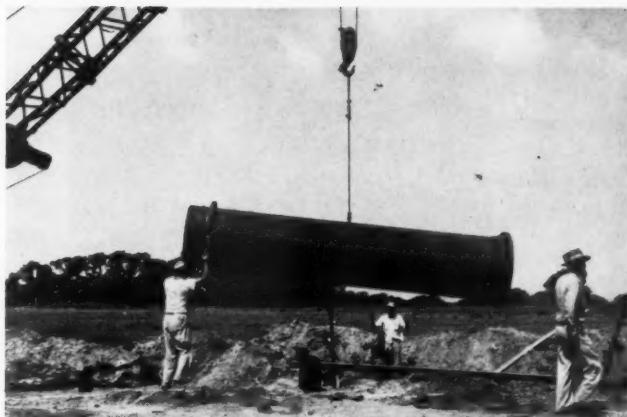
In laying the pipe in various sections of the city, the joint venture ran into all types of conditions. While one crew was blasting its way through rock over rough country, another might be wheeling along through sand on the flat. Often, when a trench bordered a busy street, traffic was a

problem. Sometimes it was more of a problem to keep ground water out of the trench.

Seven ditchers work

To push the work through, the joint venture kept as many as seven crews in the field. Ditching machines tackled the greater part of the digging. Among the seven ditchers making the dirt fly were a Buckeye, a Parsons, and a Cleveland. When the going was too rough for the ditchers, a 1 3/4-yard backhoe took over.

The 8 to 48-inch cast-iron pipe used on the job contained a cement



Easier going seems to be the lot of a subcontractor, Ajax Constructors, Inc., Oklahoma City, but this firm had its problems with ground water and traffic in the southwestern part of the city. A 16-foot length of 36-inch American cast iron pipe is being lowered into the trench.

lining that was seal-coated with tar enamel. The pipe was manufactured by the American Cast Iron Pipe Co. and the U. S. Pipe & Foundry Co., both of Birmingham, Ala.

Deep Fork Creek crossing

In completing the water line running from Lake Hefner reservoir into the northeast part of the city, a pipeline crew ran into some tough going at the Deep Fork Creek crossing, where the creek hugs the base of a steep rocky bluff. The 24-inch line comes in from the north on level ground, dips 5 feet under the creek bottom, and then rises abruptly on a slope as steep as 50 per cent.

At the start of the creek crossing, the contractor built a small earth dam over the planned center line of the pipe. A corrugated metal pipe at the base of the fill was used to carry the flow of the creek. Working on the fill, a 1 3/4-yard backhoe was able to dig the trench across the creek and start it up the steep bluff.

The contractor used 22 1/2-degree bends to drop the line under the creek and then start it up on the other side. As soon as the mechanical joints of the pipe were tightened, the trench was backfilled and the dam removed. An interesting safety measure was taken to prevent the empty pipe from rising out of the ground in the event the creek flooded: the section under the creek was filled with water to eliminate the buoyancy of the pipe.

In order to get a toe hold for equipment to operate, the contractor built a bench about half way up the slope. A Caterpillar D8 dozer worked in from the side of the hill to build a rough access road and a spot where equipment could operate.

Working from the bench, the 1 3/4-yard backhoe reached up the hill to dig out the top 6 feet of the trench. When the digging got too hard for the backhoe, crews drilled and blasted the red sandrock out of the trench. The blast holes were put down by an Ingersoll-Rand drill. It was powered by a Le Roi tractor-compressor stationed on top of the bluff. The holes were loaded with Du Pont 40 per cent dynamite.

A crane operating from the bench clammed out the blasted rock with a Wellman 1-yard bucket. This crane also assisted in placing the sand and



ILLUSTRATED GMC FW556 MONEY-MAKER is just one of a complete line of GMC's extra-stamina-engineered for construction work. They're available with conventional, dual-purpose or c.o.e. cabs—gasoline or Diesel power—regular or Allison Torqmatic* transmissions.

*Optional at extra cost

hundreds of mix every trip

Power to haul these extra-size loads comes from GMC's 370-cubic-inch V8. It delivers 232 high-torque horsepower that takes on the toughest on-and-off-the-road work without breathing hard. And it turns the 7-yard barrel, too—through its front-end PTO.

But the real eye-opener is its price tag! For all these advantages are yours at a figure *hundreds of dollars* lower than anything else close to its class. Check that at your GMC dealer's!

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GMC—America's Ablest Trucks

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After the backhoe has excavated the top 6 feet of the trench on the bluff near the creek crossing, workmen with an Ingersoll-Rand drill sink blast holes.

(Continued from preceding page)

pea-gravel blanket at the bottom of the trench and in setting the 18-foot 3-inch lengths of pipe in place.

Portland Avenue main

Different problems were encountered on the Portland Avenue water main in the southwestern part of the city. When water did not pour down out of the sky, it often seeped out of the ground into the trench. The trench bordered a busy street. Keeping the traffic and the job moving at the same time was another problem.

Solving the problems as they came up was Ajax Constructors, Inc., Oklahoma City, which held a subcontract for about a mile of the Portland Avenue line. A crane equipped with an Osgood 2-yard backhoe dug the 7 to 12-foot-deep trench and a $\frac{3}{4}$ -yard crane placed the 16-foot lengths of 36-inch cast-iron pipe. The lengths of pipe, weighing 5,500 pounds, were held together with mechanical joints.

When the backhoe encountered ground water, it dug the trench from 1 to 2 feet below grade. An Allis-Chalmers tractor shovel then filled

the bottom of the trench with 1½-inch rock, which was topped with a layer of pea gravel and sand. To keep the trench dry, the contractor used two Gorman-Rupp 2-inch diaphragm pumps.

Sandy material was placed to about 6 inches above the pipe and then compacted by flooding. The remainder of the trench was backfilled by an International TD-18 dozer, which pushed the original earth into the excavation. Excess dirt was trucked away.

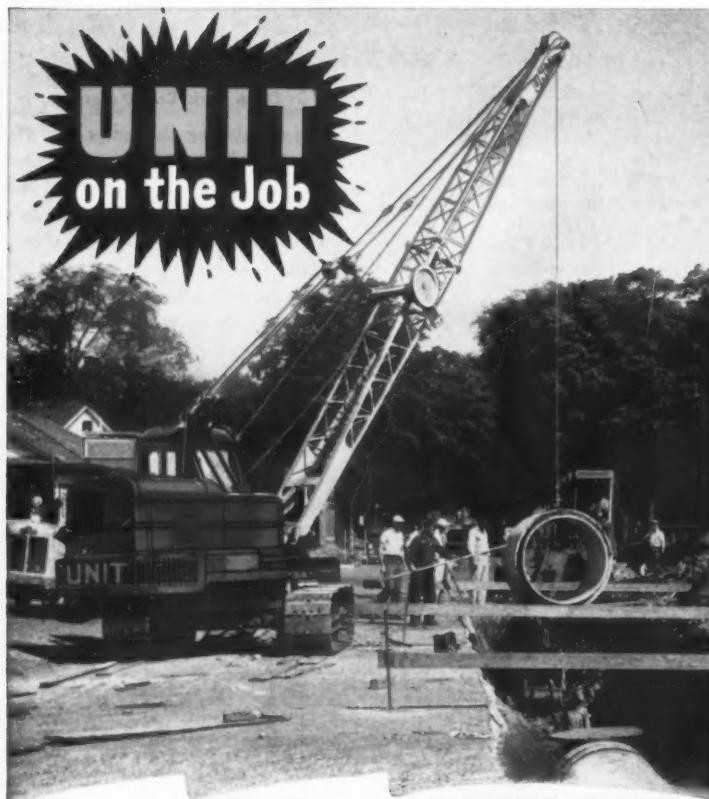
For the safety of motorists, backfilling stayed within several hundred feet of the backhoe. At the end of a day's work, an Adams grader cleaned up the road near the trenching operation to make a lane for traffic.

Personnel

The coordinator of the joint venture was Olan Smith; Harry Swatek was the general superintendent.

The head inspector on the project for the consulting engineering firm was Harry Sullivan. The Director of Public Works of Oklahoma City is M. B. Cunningham.

THE END



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Avoid legal pitfalls

Bid bond not broken

THE PROBLEM: An invitation to bid on housing projects required security that the bidder would contract with the Housing Authority on acceptance of the bid. The invitation also specified that no bid should be withdrawn within thirty days after opening of the bids. The low bidder submitted a bond requiring entry into a contract on acceptance of its bid, which was not to be withdrawn within sixty days after opening of the bids. When the bids were opened the housing officials recommended acceptance of the lowest bidder. But before an award was made by the Housing Authority—shortly after the bids were opened—the bidder discovered that, in computing the bid cost items, \$34,022 had been overlooked. Notice of the mistake and of withdrawal of the bid was given before the Authority awarded the contract.

When the bidder refused to contract, the Authority awarded the job to the next lowest bidder at \$478,000—\$14,267 more than the lowest bid. Was the surety liable for the latter sum?

THE ANSWER: No. (Peerless Casualty Co. v. Housing Authority of City of Hazelhurst, Ga., 228 Fed. 2d 376, decided by the United States Court of Appeals, Fifth Circuit.)

The court applied to the case the well established rule of law in Georgia that where there is, as in this case, a reasonable excuse for such an error in computing a bid, and the contracting authority is aware of that fact before purporting to accept the bid, the proposal is withdrawable.

The fact that the error in computing the bid was excusable was a strong factor in the decision. The court stressed the fundamental rule of law that, generally, any offer to enter into a contract is withdrawable before it is accepted. However, by intimation, the court seems to recognize what courts in other states have decided: that a bid bond or deposit is forfeitable if the lowest bidder unreasonably refuses to comply with his bid.

The decision is to be compared with one reached in the United States v. F. J. O'Donnell & Sons, Inc., 228 Fed. 2d 162, by the United States Court of Appeals, First Circuit. The case involved bids to purchase material from the government, but clearly the same decision would probably have been reached had the case involved an unexcused refusal by the lowest bidder on a construction job to enter into a contract, under similar conditions. The invitation for bids provided that withdrawal after opening would entitle the government to retain the bid deposit, resell the material, and charge the defaulting bidder with any loss. The court said liability was not limited to the amount of the deposit if the actual loss was greater.

Municipal contractors' liability to abutters

THE PROBLEM: A Texas city was sued by the owner of a business building which was undermined when a municipal sewer ditch was excavated alongside it. The city demanded that a contractor who had done the excavating reimburse it against its liability, if any. But the work had been done under the supervision of the city engineer and there was no negligence on the part of the contractor. Did the trial judge wrongfully award judgment against the contractor in favor of the city?

THE ANSWER: Yes. (City of Amarillo v. Gray, 304 S. W. 2d 742, decided by the Texas Court of Civil Appeals.)

The court cited earlier Texas deci-

sions to the effect that excavating contractors, who do their work carefully and under the supervision of the city for whom the work is done, are not liable for resulting damage to

of Appeals set that judgment aside and ordered a new trial, on the ground that the trial judge overlooked the point that the city was not absolutely liable for weakening the support of the building, but only liable if negligent in planning and carrying out the ditching.

Edited by A. L. H. STREET Attorney-at-Law

These brief extracts of court decisions may aid you. Local ordinances or state laws may alter conditions in your community. If in doubt consult your own attorney.

abutting property.

Judgment had been awarded in the trial court against the city and in favor of the property owner. The Court

Backfilling specifications

THE PROBLEM: A school building contract specified how backfilling should be done around foundations, with an additional requirement as to areas which were to receive concrete slabs on the ground: "All excavated material and bottom of excavation [undisturbed ground] shall be compacted to at least 95 per cent." The contract called for concrete floors

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avoid legal pitfalls

over the entire area inside the foundations. After the original backfilling had been completed, tests showed that the required compaction had not been achieved. The contractors did the work again under protest. They contended that because the work was subject to supervision by the school district's architect, tests should have been made as the backfilling progressed. Were the contractors entitled to pay for the extra backfilling?

THE ANSWER: No. (Pacific Coast Builders v. Antioch Live Oak Unified School District, 300 Pac. 2d 309, decided by the California District

Court of Appeal, First District.)

The court decided that the contract was not so worded as to require the school district to test the backfilling as it progressed and notify the contractors of any insufficiency of the compaction. Nor were the contractors excused even if the inspectors thought that the compaction was being properly done. The contractors were liable for the cost of re-testing.

Federal labor law applied to pipeline replacement

THE PROBLEM: The federal Fair Labor Standards Act does not apply to construction of a new facility, although it is to be used in interstate commerce, but it does apply to the repair of an existing facility. A

Nebraska city operated a water supply system that served railroads and manufacturers engaged in interstate system. To promote public safety a new pipeline segment had to be constructed across a river to replace an abandoned segment. A local contracting company did the work. Was it subject to provisions of the federal law requiring payment of time-and-a-half wages for more than 40 hours' weekly work and record-keeping requirements?

THE ANSWER: Yes. (Chambers Construction Co. vs. Mitchell, 233 Fed. 2d 717, decided by the United States Court of Appeals, Eighth Circuit.)

The court said that the company had in good faith erroneously assumed that because an entirely new main was to be constructed it could

For more facts on Insert, circle No. 281

not be regarded as a replacement. The court relied upon the decision by the United States Supreme Court in the case of *Mitchell v. C. W. Vollmer & Co., Inc.*, 349 U. S. 427, 75. S. Ct. 860, 99 L. Ed. 1196. The construction in that case was a lock and canal which would form part of the Gulf Intercoastal Waterway, as an alternate route to an adequate existing lock and canal. The Supreme Court decided that the federal labor law applied, reasoning that just as repair of facilities in interstate commerce are governed by that law, so should "the work of improving existing facilities."

As to the status of nonconstruction employees, the Court of Appeals in the Nebraska case decided that home office employees and timekeepers were covered by the federal law to the extent that their work was essential to construction of the work undertaken by the company.

Bond covered prepaid freight payment

THE PROBLEM: A rock company agreed to furnish crushed stone to a highway contractor at a certain price, on condition that the contractor reimburse the company for prepaid freight charges incurred in delivery. The contractor had given bond to pay for materials. Was the surety liable to the rock company for the contractor's breach of agreement to reimburse the company for the freight charges?

THE ANSWER: Yes. (Columbus Rock Co. v. Alabama Insurance Co., 153 Fed. Supp. 827, decided by the United States District Court, Middle District of Alabama.)

Unsuccessful bidder slandered competitor

THE PROBLEM: After a successful bidder installed electrical work in a public building and the work passed official inspection, an unsuccessful bidder for the contract reported that he had inspected the work secretly as it was in progress and that the contractor used defective materials. This led to an official reinspection which involved tearing out part of the work. No defects in performance were discovered, but the contractor was put to expense in restoring the work. Was the unsuccessful bidder liable in damages on the ground of slander?

THE ANSWER: Yes. (Adams v. Taylor, 99 S. E. 2d 807, decided by the Georgia Court of Appeals.)

Validity of city contract for engineering services

THE PROBLEM: An engineering company sued a Wisconsin city for the value of preliminary drawings and working drawings for construction of a proposed hospital building. Reliance was placed upon a claim that the city council had ratified a hospital trustee's entry into the contract. Under Wisconsin law, was it essential that the company prove that there were funds available for pay-



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GINEERS

How 6 contractors save with B.F.Goodrich tires



IN ILLINOIS—CKG Associates is at work on the Northern Illinois Toll Road near Elgin. The company operates 115 vehicles, uses B.F.Goodrich FLEX-RITE NYLON Rock Service, Tractor Grader, Earth Mover Traction, Rock Logger and All-Purpose tires. Excellent on-the-job service is one reason they prefer B.F.Goodrich tires.



IN NORTH DAKOTA—This scraper is one of 75 units operated by Northern Improvement Co. on road projects in the Dakotas, Minnesota and Montana. The scraper weighs 35 tons loaded, works 60 to 72 hours a week. The B.F.Goodrich FLEX-RITE NYLON Super Traction tires give 5,000 hours' service before retreading!



IN MICHIGAN—Julius Porath & Son Co. builds roads in southeastern Michigan, uses 105 pieces of equipment including trucks, cranes, dozers and graders. Because much work is in sand, Porath uses B.F.Goodrich FLEX-RITE NYLON 65" Special Earth Mover tires, reports they are "the best tires for this type of work."



IN WASHINGTON—"We switched to B.F.Goodrich FLEX-RITE NYLON Rock Logger tires 3 years ago," writes Richard M. Ward, Truck Supt. of F. R. Hewett Co., contractors of Spokane, Wash. "They have given us up to 50% more service than the tires we used previously. We have been able to retread them too."



IN FLORIDA—The Ralph E. Mills Company builds roads all over the world. Here the job is grading and filling on the Florida State Turnpike. The company reports B.F.Goodrich FLEX-RITE NYLON Super Traction tires work as many as 3,000 hours, thanks in part to the on-the-job service the local BFG dealer gives.

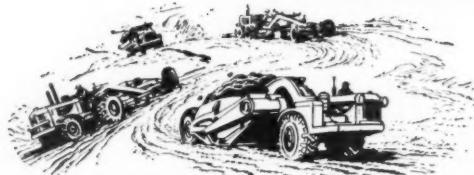


IN PENNSYLVANIA—Gasparini Excavating Co., Inc., does highway and heavy construction work—here on the Pennsylvania Turnpike. The company finds "B.F.Goodrich FLEX-RITE NYLON tires give over 4 years' service. They minimize breakdowns and impact breaks, give maximum contract performance in the shortest contract period."

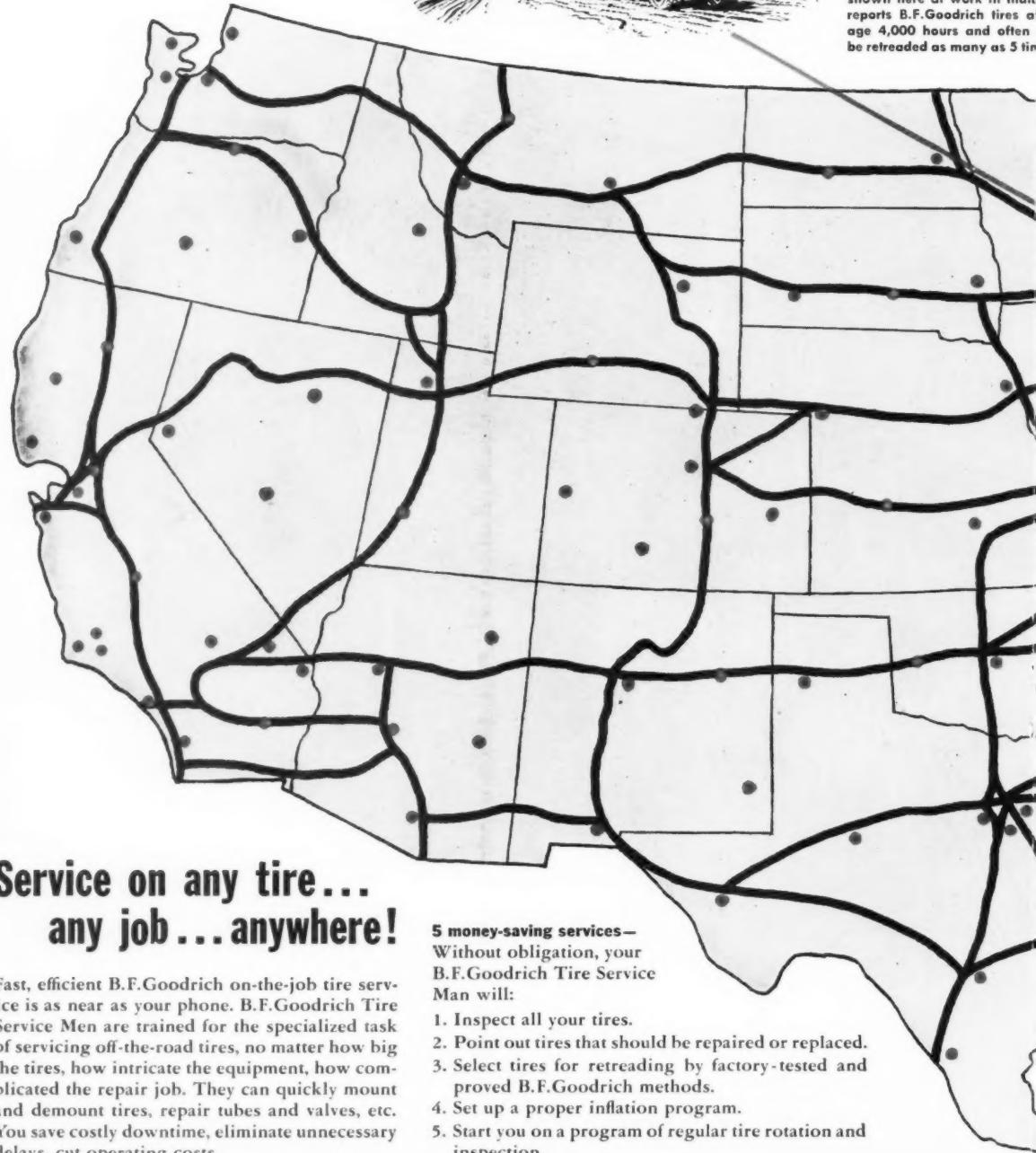


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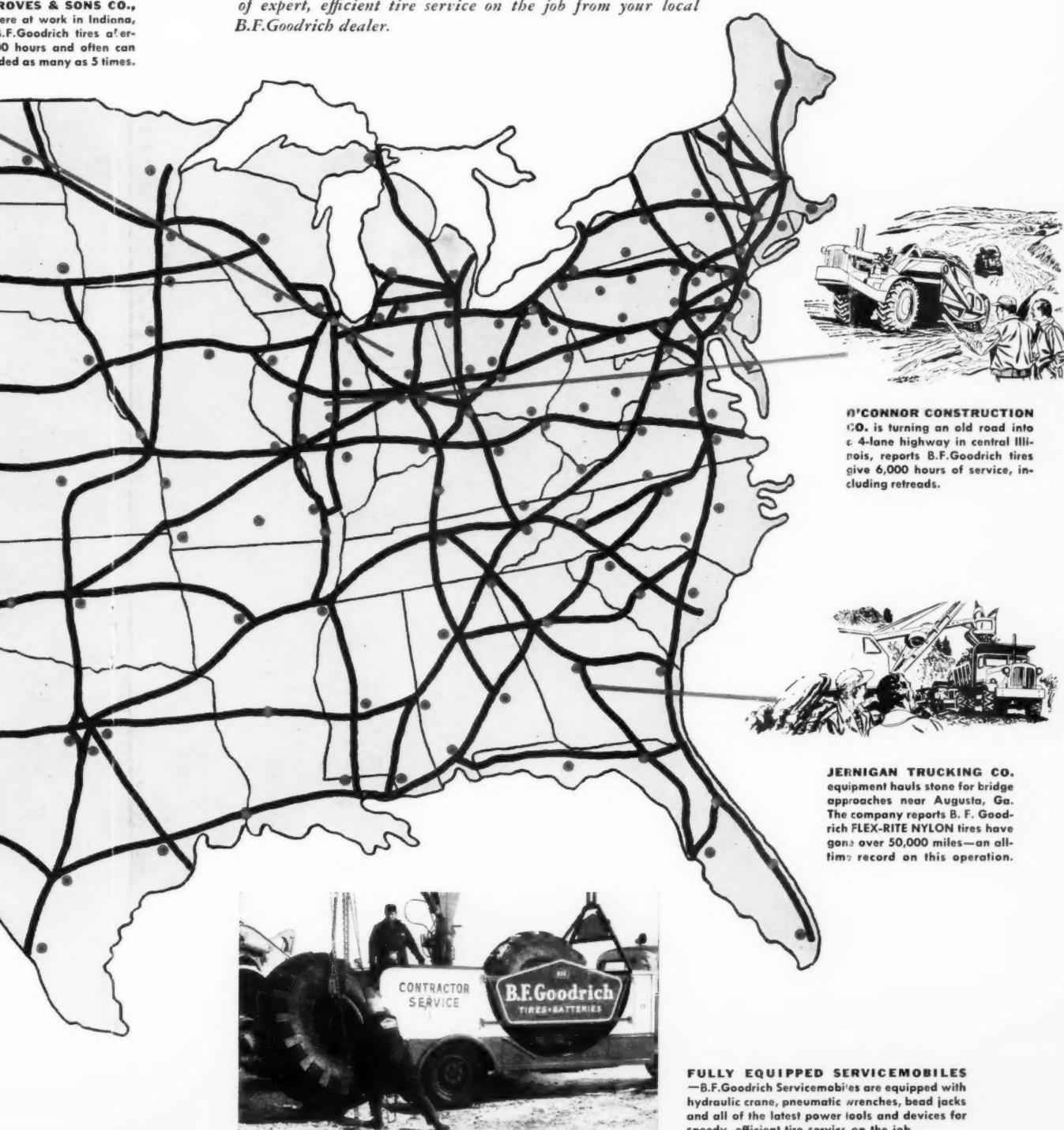
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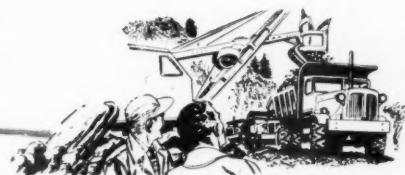
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ment of the agreed compensation?

THE ANSWER: Yes. (Ellerbe & Company v. City of Hudson, 85 N. W. 2d 663, decided by the Wisconsin Supreme Court.)

It is always very important in contracting with a municipality to make sure that the municipality is legally empowered to contract for the particular service and that the contract is made with the proper officials. It is equally important to make sure provision has been made for funds from which payment is to be made.

Contract work decreased

THE PROBLEM: *From a public contractor's standpoint, should the contract specify his right to pay for loss resulting from substantial decrease of the work, as actually ordered and performed, under the quantity covered by the contract specifications?*

THE ANSWER: In effect, the decisions of the courts bearing upon the question require an affirmative answer.

Below we abstract the substance of numerous appellate court decisions that have been rendered in cases affecting highway construction contracts. Similar decisions covering other types of public works are probably in line.

In Arizona, a state highway contract specified that there should be an equitable adjustment of the contractor's compensation, should decrease in work involve more than 20 per cent of the total cost of the work. The Arizona Supreme Court decided that this clause did not apply to a subcontract, as between the prime contractor and subcontractor. (State v. C. G. Willis & Sons, 50 Pac. 2d 20.)

In Arkansas, the length of a highway was decreased and the width was increased, with the assent of the contractor. He was denied right to collect for loss of the profit he would have earned had the widened road been as long as the contract contemplated. (Connelly v. Road Improvement District, 43 S. W. 2d 751, decided by the Arkansas Supreme Court.)

The New York Court of Claims decided that a highway contractor could not collect for loss of profits resulting from changing the route to avoid a swamp. (Hopkins v. State, 225 N. Y. Supp. 2d 665.)

In another case, the Court of Claims dealt with a state highway construction contract, which reserved to the state the right to make changes at a specified price and stated that loss of profits should not be claimed by the contractor. The court decided that changes could be made in advance of performance of the work, but not afterwards. (A. W. Banko v. State, 46 N. Y. Supp. 2d 558.)

In Missouri, a federal-aid highway project contract specified that the contractor should not claim damages for any change in plans, not materially affecting the work. The Missouri Court of Appeals decided that the clause did not permit arbitrary and material changes after

the work was commenced. (Davis Construction Co. v. State Highway Commission, 141 S. W. 2d 214.)

As to damages collectible by a contractor, the United States Court of Claims has decided that if his equipment had been idled through breach of the federal government of a parkway construction contract, the fair rental value of the equipment would be allowable as an item of damages. But there should be a deduction to the extent that there would have been wear and tear on the equipment had it not been so idled. (First-Citizens Bank & Trust Co. v. United States, 76 Fed. Supp. 250.)

In another case against the United States, a contract requiring 50,000 tons of asphalt for Army base construction was reduced to 20,000. The

contractor was denied an allowance for furnishing a larger plant than was necessary for the production of the smaller quantity. But the disallowance was based upon the fact that notice of the change was given before the plant had been dismantled at its old site preparatory to removal to the new one. (Blair v. United States, 150 Fed. 2d 676, decided by the United States Court of Appeals, Eighth Circuit.)

Use tax on federal jobs

THE PROBLEM: *A Nevada construction company, licensed to do business in New Mexico, contracted with the federal government to erect reservation buildings. The company made large purchases of materials*

outside the state. Under the construction contracts, title to materials passed to the government on being incorporated into the work and on being accepted by the government and covered by partial payment. Were the purchases subject to use taxes imposed by New Mexico?

THE ANSWER: Yes. (Robert E. McGee, General Contractor, Inc., v. Bureau of Revenue of State of New Mexico, 315 Pac. 2d 832, decided by the New Mexico Supreme Court.)

The court said that the tax was not levied upon property belonging to the government, but upon the use of the materials by the contractor in performing its contracts. The court further noted that a federal statute expressly permits imposition of such taxes by states.



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Building location demands unique methods

A 105-foot Chicago boom on a skid rig with an 83-foot wooden tower drives L. B. Foster sheet piling around the site of the Crown Zellerbach Building in San Francisco. Sheet piling has been driven halfway around the site while buildings along one edge are being demolished.

Problems did not wait for work to begin on the \$15 million 20-story Crown Zellerbach Building in San Francisco; they were there, ready for the crews when foundation work began.

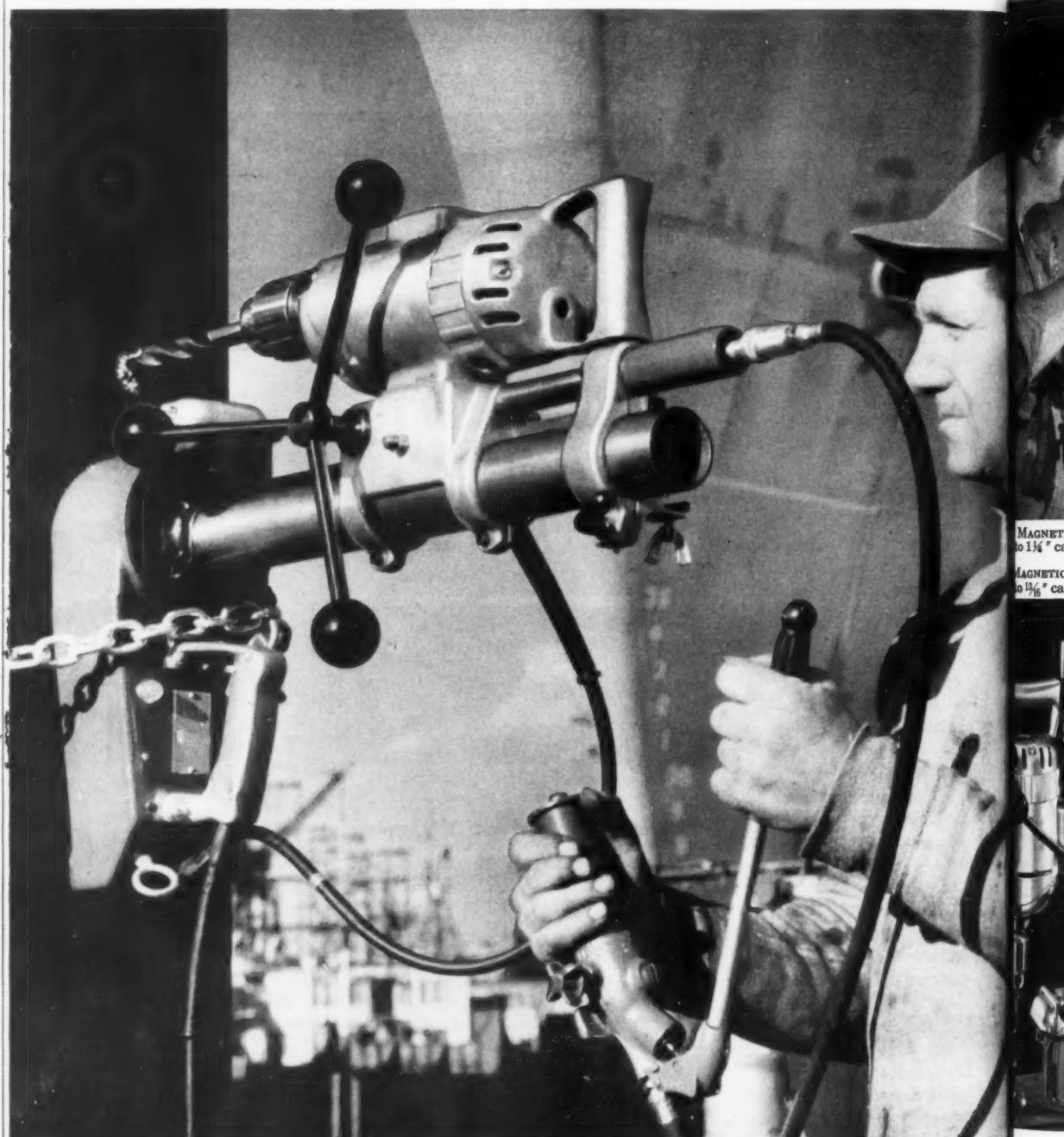
To start with, crews had to begin driving steel sheet piling while demolition of four buildings on the site was still in progress. Also, on one side of the excavation, two walls of sheet piling had to be placed, one within the other. And on one section, pinpoint accuracy in driving was required because of space restrictions. Finally, lack of storage area on the site made it necessary for sheeting to be delivered in small lots and on a carefully controlled schedule. This required close coordination on all parts of the work by the contractor, Haas & Haynie Corp., San Francisco, and the piling subcontractor, Ben C. Gerwick Co., also of San Francisco.

Scheduled for completion early next year, the building will occupy only one-third of the 48,000-square-foot site that is bounded by Market, Bush, Battery, and Sansome Streets in downtown San Francisco. Landscaped gardens, walks, and a reflecting pool will take up the remainder of the space. Below this will be a two-level garage with a capacity of 150 cars. The Crown Zellerbach Corp., which will require about 50 per cent of the office space for its headquarters, has Hertzka & Knowles, and Skidmore, Owings & Merrill as associated architectural firms.

Unusual method

Because of the location of the building, an unusual method of excavation was adopted that required the extra wall of sheeting. The building, about equidistant from Battery Street on the east, Market Street on the south, and Sansome Street on the west, is almost on top of Bush Street on the north. But the contractor compensated for the off-center location by doing the work in well-defined steps.

When sheet driving began, four buildings still remained standing on the east side of the site, two of them directly in the driving line. To forestall a work bottleneck, Gerwick crews began placing sheeting behind the buildings. Then they worked along the north, west, and south sides of the site. The timing was excellent. By the time sheet-driving crews reached the east side, the two buildings that had blocked the driving line were down, and demolition of the



Sticks like glue . . . works in any position

You are looking at a Black & Decker Magnetic Drill Press at work 15 feet off the ground! No operator holds it—it holds itself to the work with over a thousand pounds of magnetic power. No operator touches it—he feeds it precisely into the work with fingertip pressure on the exclusive B&D Hydra-Power Feed.

The new B&D Magnetic Drill Presses are truly so unusual they must be seen to be appreciated. They

come in two capacities— $\frac{3}{4}$ " and $1\frac{1}{4}$ ". They are complete precision units—not attachments. They drill, ream and tap upside down, on their sides or upright. They are ideal for tool shops, steel fabricators, heavy machinery, maintenance . . . anywhere you have to take a drill press to the work. THE BLACK & DECKER MFG. CO., Dept. 1305, Towson 4, Maryland. (In Canada: Brockville, Ontario.)

See the Features of the NEW Black & Decker Magnetic Drill Presses

Unusual work by foundation crews

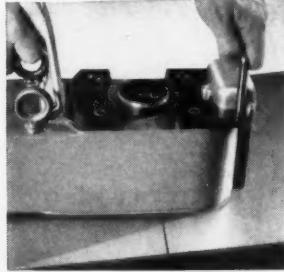
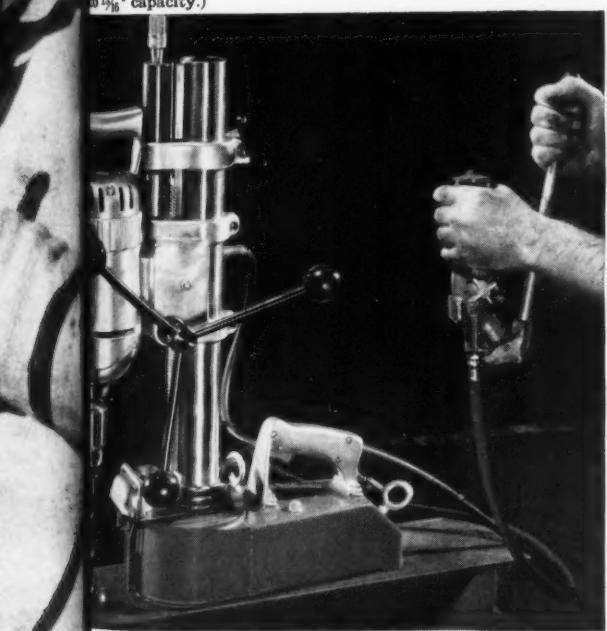
Sheet-pile driving and building demolition
are done simultaneously; lack of space requires
special care in driving, storing sheeting

Though the new building will have open space on three sides, it will be located almost adjacent to one street and two walls of sheeting have to be driven so that excavation can be done. Bleachers are being built for sidewalk superintendents.



MAGNETIC DRILL PRESS works high in the air upside down! to $1\frac{1}{4}$ " capacity.)

MAGNETIC DRILL PRESS goes to the work, drills upside down, too! to $1\frac{1}{16}$ " capacity.)

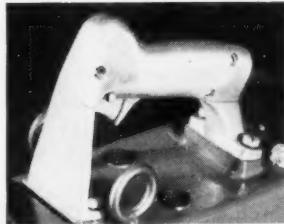


★ MULTIPLE USE! Magnetic Unit of $1\frac{1}{4}$ " Press may be used to hold pieces for butt welding, etc!

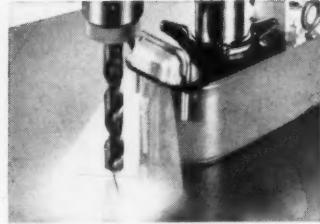


★ CLOSEST TOLERANCES! Drill Point Locator provides accuracy never before possible! Built into magnet.

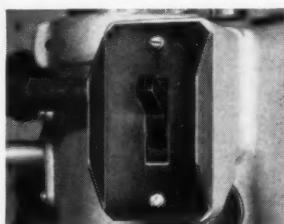
Check these exclusive Black & Decker features!



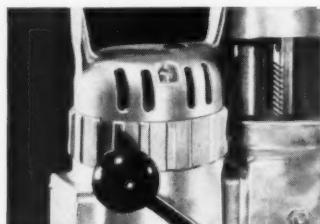
★ SAFETY-GRIP SWITCH keeps magnet always "on" after operator releases switch trigger—another safety plus.



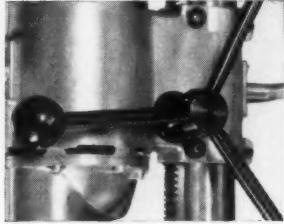
★ WORK AREA BRIGHTLY LIT by exclusive headlight. Special ruggedized bulb withstands hard usage.



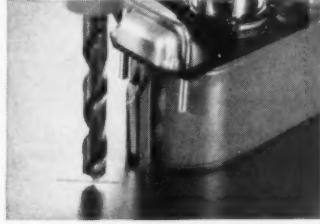
★ LONGER LIFE—INCREASED SAFETY results from built-in time delay in $1\frac{1}{4}$ " Reversing Switch. Prevents motor being reversed too rapidly.



★ LONGER LIFE—INCREASED SAFETY as Reversing Switch of $1\frac{1}{4}$ " Press is turned. Switch goes to "neutral" then "on" again in other direction.



★ HIGHEST ACCURACY results from unitized construction of drill press—cannot work loose, no side play... Drill Press is an integral unit.



★ DRASTICALLY INCREASED SAFETY due to location of magnet near drill point. Provides maximum magnetic power at drill pressure point.

inny position!

Leading Distributors Everywhere Sell

Black & Decker®

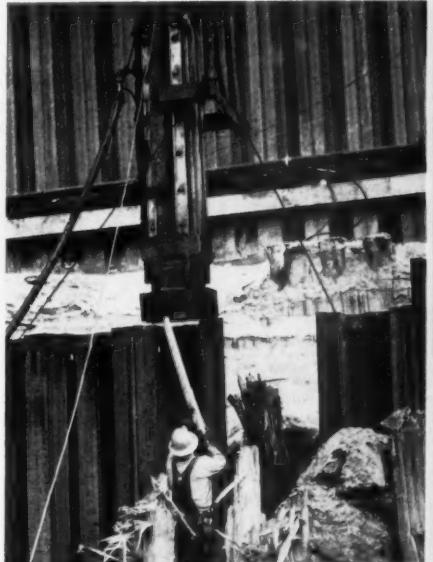
Quality Electric Tools... Power-Built for top performance



MAIL COUPON TODAY FOR A FREE DEMONSTRATION!

THE BLACK & DECKER MFG. CO., Dept. 1305, Towson 4, Md.

Please arrange a demonstration of your $1\frac{1}{4}$ " $\frac{3}{4}$ " Magnetic Drill Press
 Please send me additional information
Name. _____ Title. _____
Company. _____
Address. _____
City. _____ Zone. _____ State. _____



A workman guides a McKiernan-Terry hammer onto the sheeting for the last few feet of driving. The M-K hammers were used exclusively.

For more facts, use coupon or circle No. 283



A hammer cage used to drive the rented L. B. Foster piling is contractor-made of welded wide flanges and angles.

into the ground, about 10 feet apart, securely braced. Two long 4 x 12's were then fastened horizontally across the top and bottom of the poles. Sheeting was placed along the length of the framework, which served as a guide while piling was pinned. When all sheets were in place and on line vertically, the guide was removed and driving completed.

Gerwick's technique for driving the sheeting was to pin the piling with a 6½ steam hammer and do the rest of the driving with either a McKernan-Terry 10-B-3 or 11-B-3 steam hammer. Sheet was set in place by a 105-foot Chicago boom on a skid rig with an 83-foot wooden tower. Most of the sheeting was driven about 55 feet below street level, through varying strata of dune sand and mud.

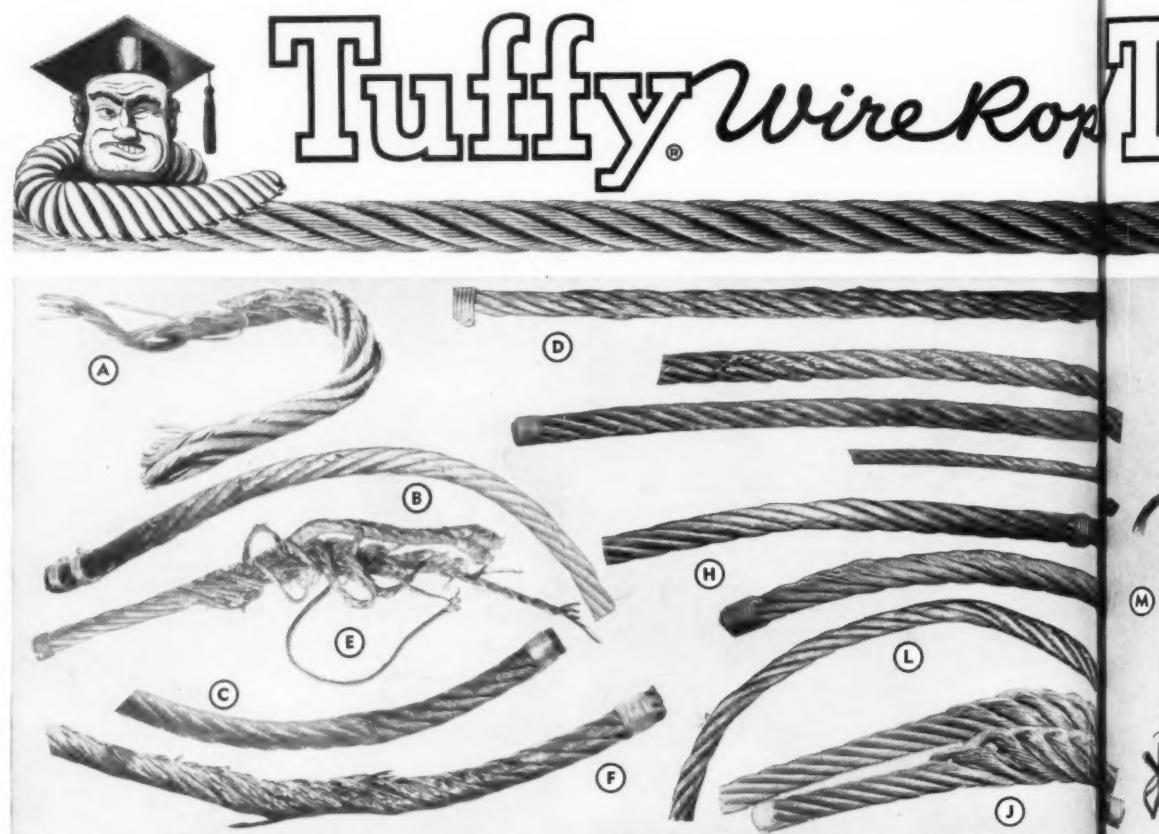
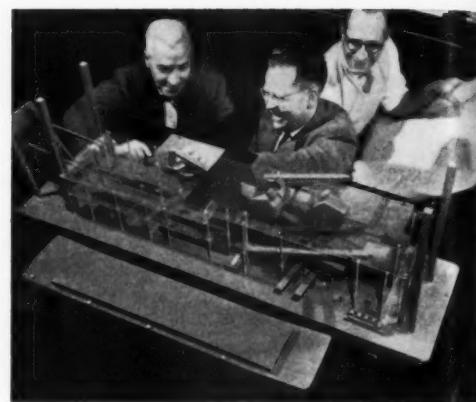
Altogether, 217 pieces of MZ-32 sheeting in 48 to 64-foot lengths and 637 pieces of MZ-38 sheeting in 55 to 65-foot lengths were required for excavation protection. All of the sheeting was rented from the Los Angeles office of L. B. Foster Co.

Because of the limited storage area, the large quantity of sheeting could not be stockpiled on the job site. As it turned out, this did not cause any delays in driving. Foster held the sheeting in its Oakland storage yard and trucked small quantities to the job site as needed. A schedule was worked out so that a predetermined amount was delivered every three days, unless a need for more frequent deliveries arose.

Once the sheet-driving problems were licked, Haas & Haynie got to work pouring the 8-foot-thick concrete mat that serves as a foundation for the building. Twenty-six steel columns rising from the mat will support the structure. The framework will be of steel, but the building is designed so that all floor space will be completely open, free of columns or other obstructions. All building services, including automatic elevators, air conditioning, water pipes, and fire escapes, will be housed in an adjoining tower on the Market Street side.

THE END

A MODEL OF A \$2 MILLION DREDGE, designed to produce sand and gravel aggregates, is checked over by (left to right) James Cormack, project engineer; Fred Seiler, design engineer; and W. L. Price, engineering manager of Dravo Corp., Keystone Division, Pittsburgh, Pa. Complete with its own heavy media plant, impact crusher, and scrubber, the plant will dig about 500 tons of material per hour, and separate four grades of aggregates. The dredge will be 200 feet long, 53 feet wide, 8 feet 9 inches deep, and will be powered by two 500-kw diesel-electric generators. It is scheduled to be operating in 1960 on the Ohio River between Pittsburgh and Steubenville, Ohio.



Guard Against these Cripplers and Killers of Wire Rope

Pictured above are some of the results of wire rope abuses. They quickly ruin wire rope efficiency or end rope life abruptly, long before you have had the service you paid for. Even the best wire rope is a sitting duck for these enemies. When you avoid or minimize them, you make real gains in longer rope life, better service and greater economy. Remember, your Tuffy distributor will be glad to work with you against these and other wire rope hazards.

Here are the "case histories" of the untimely wire-rope fatalities and injuries shown in the picture:

A. Mangled in a wedge socket: Here's a result of improper socketing. It was caused by using a poorly designed or worn-out wedge socket. Failure at the dead end can damage other sections of the rope, too.

B. Rusty road to ruin: Rust—No. 1 enemy of steel—takes a heavy toll in wire rope life. An insidious, silent type of killer, rust often does irreparable damage before it's even noticed. The one-strand break shown here resulted when the rope was allowed to become rustbound through lack of lubrication. Tests show that, with other conditions ideal, properly lubricated rope has up to 10 times the life expectancy of dry rope.

C. The crushing blow: The Sunday punch for this piece of wire rope was delivered by a tractor cleat—just one of many crushing injuries caused by rope being run over or banged into by hard, sharp objects. Even the toughest wire rope is no match for this kind of mis-treatment.

D. Strangled by a misfit: When the bearing surface of a sheave is too small for the rope diameter, pinching action quickly destroys the rope—especially when it's overloaded. The victim shown here was knocked out in just 1½ hours of service.

E. Apparent suicide: This rope jumped out of sheave and was soon destroyed by pulling around the shaft. Actually it was a case of sudden slack which threw the rope out of the sheave.

F. End of the line came quickly for this rope as the result of operating over a sheave that did not turn. Note the exceptionally heavy abrasion on one side of the rope. Sheaves should be checked thoroughly and often.

G. Victim of the "bends": Excessive bending of wire rope accelerates wear. Generally, more flexible ropes are used as bending stresses increase (with decrease in tread diameter of sheave or drum). If a rope is operated on a sheave too small for its bending characteristics, early failure is certain. Through an exhaustive series of bend-

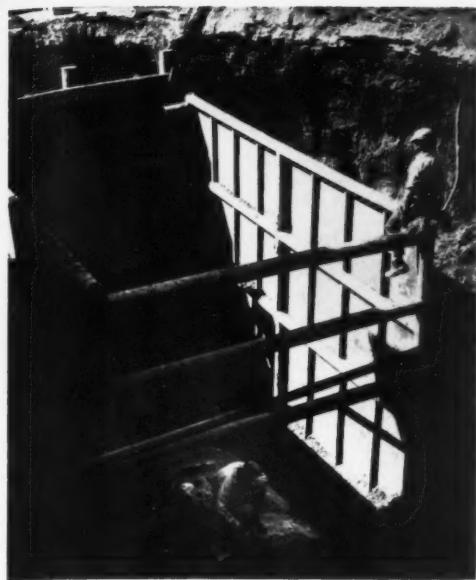
ing tests, Union Wire Rope engineers have compiled data that you can use to assure getting the rope construction that will give you the longest service life. Ask about it.

H. On the "blink" from a kink: This open kink resulted from mishandling of rope. Guard against kinks by proper winding on the drum. Never pull a rope smaller. Always enlarge it, then straighten out the rope.

I-L. Crushed and worn from "beating on the drum": Even under normal operating conditions, drum wear gives wire rope severe punishment. The wear concentrates at the cross-over points and at the flange. Excessive drum crushing results from operating on small drums, excessive loading and poor winding. Smooth drums are not recommended. Here are typical "drum beatings":

I. Cross-over wear.
J. Cross-over crushing on drum.
K. Drum crushing from poor winding.
L. Drum-crushing from small drum.

Although drum wear cannot be eliminated, its effects can be greatly reduced. Under properly engineered procedures, two and three times the service can be obtained from the same line by improving drum conditions. Union Wire Rope engineers will help you with this problem. Get in touch with us for more information.



A worker sealing a joint of concrete pipe is protected by a movable shoring box used on a sewer project in Springfield, Ohio. The box eliminated the usual procedure of shoring both sides of the trench and pulling out the shores before backfilling.

Movable shoring box cuts time, protects men on concrete-sewer project

A movable shoring box in an excavated trench cut construction time and protected workers on a concrete-sewer job in Springfield, Ohio. Haddad Construction Co., Columbus, Ohio, contractor on the \$510,544 job, has applied for patent on the box designed by Said Haddad, the firm's founder.

The box, made of $\frac{3}{8}$ -inch sheet steel, was framed by 3 and 6-inch-diameter steel pipe. The box measured 20 feet long, 14 feet wide, and 16 feet deep. Both sides protected workers in the trench against cave-

ins and slides, as they placed and joined the 8-foot sections of concrete pipe.

The upper half of the front was enclosed by planking. This does not interfere with the forward movement of the box, and it also protected the men against cave-ins and spill from the newly excavated earth in the direction of the pipe laying. The open back end of the box permitted backfilling as the work moved forward. The entire box was mounted on runners at the bottom of the trench.

A Marion shovel, about 20 feet ahead of the pipe-laying operation, excavated the trench to grade and dragged the movable shoring box ahead. A Lorain crane with a clamshell bucket brought the pipe trench down to final grade.

The 4,250-foot-long sanitary sewer serves the Wheldon district of Springfield. Nearly 2,400 feet is of 90-inch-diameter pipe with 8-inch-thick walls reinforced with steel welded-wire fabric. The balance of the line is 84-inch-diameter pipe that is reinforced with steel fabric.

N. Y. bridge authority issues 25-year report

In the first public report of its 25 years of existence, the New York State Bridge Authority stresses the need for a modern bridge crossing the Hudson River between Newburgh and Beacon to replace the "obsolete, expensive, and inefficient ferry service now in operation."

Although preliminary work on acquiring land and designing the bridge is under way, the Authority faces a problem of financing construction. The Authority's present debt limit precludes any new financing to cover the \$40 million costs, including land and engineering, of the new bridge, in view of almost \$20 million in bonds now outstanding. A bill to increase the present debt ceiling is currently before the state legislature.

In 25 years, there have been approximately 91,500,000 vehicular crossings for gross toll revenues of more than \$27 million from the Mid-Hudson Bridge at Poughkeepsie, the Rip Van Winkle Bridge at Catskill, the Bear Mountain Bridge, the Kingston-Rhinecliff Bridge, and the Newburgh-Beacon ferry.

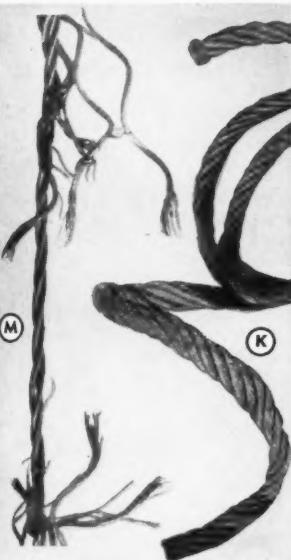
Haring moves office to Washington, D.C.

C. J. Haring, who represents equipment manufacturers in sales to the United States government and in exporting, has moved his offices from Pittsburgh, Pa., to the Denrike Bldg., 1010 Vermont Ave. N. W., Washington 5, D. C.

Before starting his own business two years ago, Haring was with the J. D. Adams Co., Indianapolis, Ind., for 25 years.

Tips

Be Sure You Use BALANCED Wire Rope



You hear a lot about extra strength in wire rope. There is no trick to designing wire rope with very high strength. But—there is nothing to be gained if high strength is put in to the exclusion or subordination of other qualities that are just as important as excessive strength.

For example: the life of a dragline depends on its resistance to abrasion. When it breaks, as a result of continued exceptionally hard digging in abrasive materials, the owner finds maintenance cost of the dragline increasing. Hard-drawn rope tends to act as a spring. As wear progresses, it arches over the crown of the strand. Repeated flexing of this too-strong arched wire causes early failure. So the drag rope must meet a condition where strength is not the major factor in resisting abrasion.

Every one of the Tuffy Special Purpose Ropes has a different ratio of strength to other properties necessary for longest life, most efficient operation and lowest maintenance expense. Your Union Wire Rope distributor has the BALANCED rope for every application.

Tuffy Special-Purpose Ropes are tailored & BALANCED for special uses



Tuffy BALANCED Slings & Hoist Lines

Top-performing team in every type of materials handling. Tuffy Slings are made of a patented, machine-braided fabric; stays extra flexible, can't be seriously hurt by knotting or kinking. Tuffy Hoist Line is a special construction of super flexibility and toughness.



Tuffy BALANCED Scraper Rope

It's flexible enough to withstand sharp bends, yet stiff enough to resist looping and kinking when slack. Moves more yardage per foot because it's specially built and balanced to take the beating of drum-crushing abuse.



Tuffy BALANCED Dozer Rope

Built to give you longer service with less downtime. 150' reels of $1/2$ " or $9/16$ " mounted on your dozers allow you to cut off worn sections without wasting good rope. Put Tuffy Dozer Rope on the job and watch costs go down!



union  **Wire Rope Corp.**

SUBSIDIARY  AMCO STEEL CORPORATION

Kansas City 26, Mo.

Specialists in high carbon wire, wire rope, braided wire fabric, stress relieved wire and strand.

For more facts, use Request Card at page 18 and circle No. 284

Rope

M. Overloaded — soon exploded: The rated capacity of a wire rope is based on the breaking strength (catalog) divided by a safety factor applicable to the type of service or use. The grade of steel, type of construction and size of the rope determine tensile strength. It must be properly related to the loads it will carry, or costly and dangerous mishandling early failures are likely to occur.

How Your Tuffy Distributor Can Help You Save Money

Condition of equipment is a big factor in longer rope life and greater economy. Your Tuffy distributor will help you check your equipment and operating conditions to make sure everything is in your favor for getting greatest service from your wire rope. Get in touch with him. And ask him to put your name on his mailing list for FREE Tuffy Educational Bulletins.

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NEERS
MAY, 1958

Earth-embankment work is topic of MIT program

A special summer program on "The Design and Construction of Earth Embankments" will be given September 2 through 12 during the summer session at the Massachusetts Institute of Technology. The two-week program will emphasize the use of plastic soils, particularly clay, and fine-grained soils in the construction of earth embankments.

Among the topics to be discussed are compaction theory, laboratory testing of embankment materials, engineering behavior of compacted soil, design of embankments, and the consideration of embankments for highways, airfields, and dams. Other topics include the design of pavement

bases and subgrades, pore water pressures in embankments, field compaction, and embankments on soft foundations. The morning sessions will be devoted to lectures, and the afternoons to discussions and laboratory visits.

Tuition for the program will be \$250. Further information may be obtained from Dr. T. William Lambe, associate professor of soil mechanics and head of the division of soil engineering, Department of Civil and Sanitary Engineering, Massachusetts Institute of Technology, Cambridge 39, Mass.

New Armco film relates history of sheet steels

"More Than Just Steel", a film from Armco Steel Corp., tells the

story of special-purpose sheet steels, from electrical steel and enameling iron in the early years of the century to special zinc-coated and aluminum-coated steels of today. The 16-mm sound, color film also covers the development and uses of standard and special stainless steels.

Copies of the film may be obtained from the Product Information Service, Armco Steel Corp., Middletown, Ohio.

Clark division appoints

Clark Equipment Co.'s Construction Machinery Division, Benton Harbor, Mich., has appointed Donald C. Feys special field representative. He will cover the northeastern United States and Canada.



P & H HARNISCHFEGER CORPORATION, MILWAUKEE, WISCONSIN...uses Timken tapered roller bearings for practically friction-free operation in its heavy-duty cranes.

TIMKEN TAPERED ROLLER BEARINGS ROLL THE LOAD

TRADE-MARK REG. U. S. PAT. OFF.

For more facts, use Request Card at page 18 and circle No. 285

Convention calendar

May 6-8 Highway Transportation Congress

Meeting, Hotel Mayflower, Washington, D. C. Arthur C. Butler, director, HTC, 966 National Press Bldg., Washington 4, D. C.

May 9-10 Michigan Engineering Society

Seventy-eighth Annual Convention, Lansing Civic Auditorium, Lansing, Mich. C. C. Thornton, president of the Lansing Engineers Club, MES, 3002 Timber Drive, Lansing, Mich.

May 14-17 National Rivers and Harbors Congress

Meeting, Mayflower Hotel, Washington, D. C. William H. Webb, executive vice president, NRHC, 1028 Connecticut Ave. N. W., Washington 6, D. C.

June 3-6 Western Association of State Highway Officials

Meeting, Hotel Utah, Salt Lake City, Utah. WASHO, c/o State Road Commission, 442 State Capitol, Salt Lake City, Utah.

June 9-12 National Materials Handling Exposition

Eighth Annual Exposition, Public Auditorium, Cleveland, Ohio. Clapp & Poliak, Inc., NMHE, 341 Madison Ave., New York 17, N. Y.

June 11-14 National Society of Professional Engineers

Annual Meeting, Chase-Park Plaza Hotels, St. Louis, Mo. Kenneth E. Trombley, NSPE, 2029 K St. N. W., Washington 6, D. C.

June 15-18 American Public Works Association

Western Area Public Works Conference, Cortez Hotel, San Diego, Calif. D. F. Herrick, executive director, APWA, 1313 E. 60th St., Chicago 37, Ill.

June 15-19 American Society of Mechanical Engineers

Semi-Annual Meeting, Statler Hotel, Detroit, Mich. ASME, 29 W. 39th St., New York 18, N. Y.

June 17-18 Bituminous Concrete Producers Association

Meeting, Thousand Island Club, Alexandria Bay, N. Y. Matthew L. Fitzgerald, executive secretary, BCPA, DeWitt Clinton Hotel, Albany, N. Y.

June 22-27 American Society for Testing Materials

Sixty-first Annual Meeting and Apparatus Exhibit, Hotel Statler, Boston, Mass. Fred F. Van Atta, assistant secretary, ASTM, 1916 Race St., Philadelphia 3, Pa.

June 30-July 2 American Society of Landscape Architects

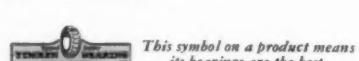
Meeting, Shoreham Hotel, Washington, D. C. Henry Schultheis, general chairman, ASLA, Mt. Zephyr Drive, Alexandria, Va.

June 30-July 2 School for Highway Superintendents

Meeting, Riley-Robb Hall, Cornell University, Ithaca, N. Y. James W. Spencer, highway research and extension engineer, Department of Agricultural Engineering, Riley-Robb Hall, Cornell University, Ithaca, N. Y.

August 25-29 National Shade Tree Conference

Conference, George Vanderbilt Hotel and Public Auditorium, Asheville, N. C. L. C. Chadwick, secretary-treasurer, NSTC, Department of Horticulture, Ohio State University, Columbus, Ohio.



This symbol on a product means its bearings are the best.



Leschen names R. Hartup

R. Rex Hartup has been named prestress planning engineer for Leschen Wire Rope Division, H. K. Porter Co., Inc. Headquartered at the Leschen general office in St. Louis, Mo., Hartup serves as special consultant to manufacturers of prestressed-concrete products throughout the country.

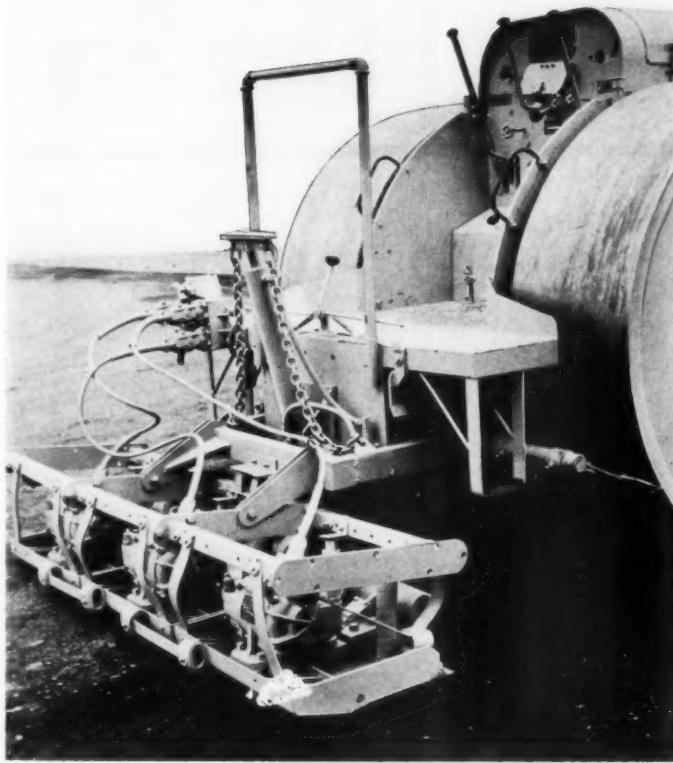
CONTRACTORS AND ENGINEERS

PRODUCT PARADE



For further information on any of the products described in the following section, circle the designated number on the Request Card at page 18.

Combine 3-wheel roller, vibratory compactor in one unit



A compaction machine, which provides both static and dynamic compactive effort, is announced by The Galion Iron Works & Mfg. Co.

A combination of the Galion Chief or Warrior Roll-O-Matic 3-wheel roller and Jackson electric vibratory compactor, this equipment is said to provide, simultaneously, the compressing action of massive roller weight plus the consolidating action of vibration produced by 4,200 three-ton blows per minute.

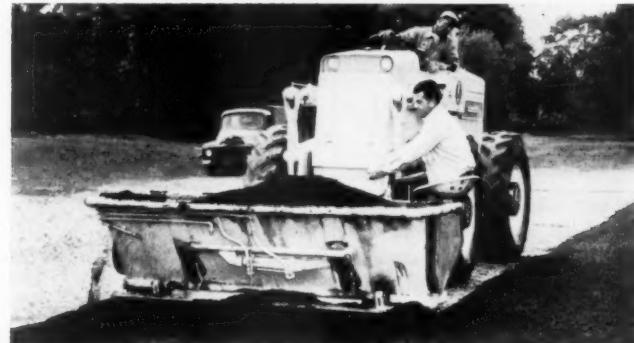
The vibratory compactor workhead is made up of three 26-inch-wide steel-plate shoes, individually vibrated

by a heavy-duty electric motor mounted on each shoe. The motors are powered by a 3-phase 115-volt generator driven by a separate gasoline engine.

Any single compacting unit may be detached and fitted with an operating handle to convert it into a manually guided, self-propelled compactor for use on jobs inaccessible to complete compacting machines.

For further information write to The Galion Iron Works & Mfg. Co., Dept. C&E, Galion, Ohio, or use the Request Card that is bound in at page 18. Circle No. 45.

Offer blacktop spreader attachment for loaders



The Frank G. Hough Co. announces the availability of a blacktop spreader attachment designed for its Models HU, HH, and HO Payloader tractor shovels. The attachment, front-mounted and interchangeable with the bucket, lays down hot or cold-mix asphalt in strips up to 8 feet wide in a single pass. It is designed to work in close quarters where pavers and trucks cannot operate.

Conveniently arranged levers pro-

vide fingertip control of throttle, main feed gate, width adjustment, and the up to 6-inch thickness of spread.

The unit has a 2-cubic-yard-capacity hopper, and a separate air-cooled gas engine provides pressure for the hydraulic motor.

Write to The Frank G. Hough Co., Dept. C&E, 762 Seventh Ave., Libertyville, Ill., or use the Request Card that is bound in at page 18 of this issue. Circle No. 98.

Rear-dump hits 34 mph with 27-ton payload aboard



A new rear-dump with a 27-ton payload rating is announced by the Euclid Division of the General Motors Corp.

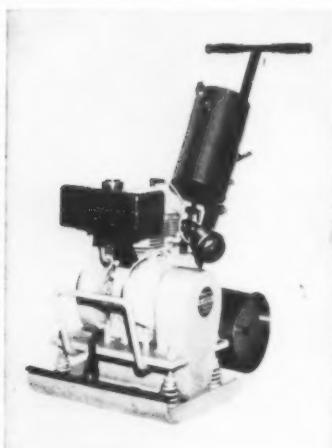
Designated Model R-27, this truck is equipped with either a Detroit 300-hp or Cummins 335-hp diesel engine. Allison Torqmatic drive is standard, as are 18.00×25 tires on all wheels. Top loaded speed of the R-27 is 34 mph.

The 4-speed Torqmatic drive features automatic converter lock-up for maximum economy when hauling at

high speeds. A Torqmatic brake for safer braking is standard equipment.

Both the standard and optional quarry-type body have an 18-cubic-yard struck capacity. Designed to work with big loading equipment, the R-27 has a low loading height of 9 feet 10½ inches, and a dumping angle of 61 degrees.

Write to the Euclid Division, General Motors Corp., Dept. C&E, 1361 Chardon Road, Cleveland 17, Ohio, or use the Request Card at page 18. Circle No. 44.



Water-feed attachment for blacktop compaction

A new water-feed attachment, for use on the Powr-Pactor self-powered vibratory compactor when compacting blacktop, is announced by the Maginniss Power Tool Co.

The new attachment supplies a film of water which flows down and coats the face of the compacting plate, effectively preventing asphalt adhesion and assuring a smooth, uniform finished surface, the manufacturer states.

Easily mounted, the attachment consists of a drilled feed pipe bolted to the compacting plate, a 2-gallon tank clamped to the handle, wire-tread steel rollers which replace the standard wheels, and a flow-control valve, connecting hose and clamps. One filling of the tank is claimed to be sufficient for two hours' operation.

The Powr-Pactor produces a compacting force up to 4,000 pounds with variable frequencies from 2,400 to 7,000 vpm, and is available powered by a 6-hp gasoline engine or a 3-hp electric motor.

For further information write to the Maginniss Power Tool Co., Dept. C&E, 154 Distl Ave., Mansfield, Ohio, or use the Request Card that is bound in at page 18 of this issue. Circle No. 71.

Offer lightweight carrier for concrete specimens

A new type of concrete-cylinder carrier is announced by Soiltest, Inc. Designated Bristol Carrier, the unit makes it possible for the engineer or technician to carry two concrete cylinders in the field or in the laboratory with safety, and with a minimum of effort.

According to Soiltest, the cylinder carrier is designed so that the mold in which the concrete cylinder has been formed can be carried immediately after being filled, and without injury to the samples.

Made of cadmium-plated steel, the carrier weighs only 1 1/4 pounds. It can be slipped over a concrete specimen or mold in just a few seconds.

For further information write to Soiltest, Inc., Dept. C&E, 4711 W. North Ave., Chicago 39, Ill., or use the Request Card at page 18. Circle No. 52.

Though designed primarily for placing concrete, the Faircrete conveyor is being used for an increasing variety of jobs. Here the conveyor and a car unloader are stockpiling sand from a gondola rail car. When used as a stockpiling machine, the Faircrete conveyor has a maximum discharge height of 27 feet, and its capacity is increased by the use of cleats on the 18-inch-wide rubber belt. The machine's versatility for stockpiling is further enhanced by the use of swivel wheels which turn the unit into a radial-type stacker. The Faircrete comes complete with a tow hitch, and is available with either gasoline-engine or electric-motor drive. For further information about the Faircrete conveyor write to The Fairfield Engineering Co., Dept. C&E, 324 Barnhart St., Marion, Ohio, or use the Request Card at page 18. Circle No. 60.



Heltzel Flex-Plane



UNITIZED BATCHING PLANTS to further speed set-up and dismantling time . . . to give you even greater on-the-job flexibility. The new Heltzel Unitized Plant—like these on a G. Toccolino & Son job in Detroit—is designed in three easy-to-handle sections that go together in minutes. This installation is set up as push-button drive-through for extra fast service. Batcher and scale unit is integral part of center section . . . a real time-saving innovation. (Note new Heltzel E-4 twin-batcher cement plant.)

2202

THE HELTZEL STEEL FORM AND IRON



This attachment boom for the "Quick-Way" Model 125A truck crane is designed to precision grade slopes and roadsides, rip up pavement, dig under and around obstacles, clean ditches, and load trucks. Hydraulically operated, the telescopic unit extends to a 31-foot radius, and reportedly can be installed or removed in one hour.

Truck-crane attachment permits grading, digging

The Utilo-Scope, a hydraulically operated, telescopic grading and digging boom attachment for use with its Model 125A truck crane, is announced by the "Quick-Way" Truck Shovel Co.

The attachment boom, which reportedly can be installed or removed in one hour, extends to a radius of 31 feet. The bucket or grading blade swivels from side to side, and opens

and closes with a wrist action.

According to the company, an automatic disk-type brake on the bucket swivel permits positive positioning and holding of the bucket angle in any type of work. An improved cylinder suspension system for the 6-foot main hydraulic cylinder prevents misalignment of the boom-actuating gear.

New control levers mounted directly on the standard crane-shovel controls make possible simultaneous operation of all crane and hydraulic actions.

The Utilo-Scope boom is a heavy-duty, all-welded, box-type unit which is raised or lowered by the main hoist cable of the crane.

For further information write to the "Quick-Way" Truck Shovel Co., Dept. C&E, 2401 E. 40th Ave., Denver, Colo., or use the Request Card at page 18. Circle No. 29.

Roller operates within $\frac{1}{2}$ inch of obstacles

A new roller designed to operate within $\frac{1}{2}$ inch of almost any obstacle, and said to work efficiently on inclines too steep to be practical for other types of machines, is announced by the Gledhill Road Machinery Co.

The Gledhill roller, powered by a Wisconsin AENL 9.2-hp air-cooled engine, features single-lever control with constant-mesh transmission.

The 30½-inch-diameter \times 36-inch



Powered by a Wisconsin AENL 9.2-hp engine, this Gledhill roller works at speeds from $\frac{1}{2}$ to 2 mph. The machine operates within $\frac{1}{2}$ inch of any obstacle, and is said to be especially valuable on steep inclines.

drive roll and the 20½-inch-diameter \times 30-inch steering roll turn on Timken bearings. When completely water-filled, the drive roll reportedly exerts 85 pounds pressure per lineal inch; the steering roll, 30 pounds.

The machine, which weighs 2,500 pounds empty and 5,450 pounds water-filled, is 86 inches long, 41 inches high, and works at speeds from $\frac{1}{2}$ to 2 mph. A 120-gallon sprinkler tank is standard, as are sprinkler mats on each roll.

For further information write to the Gledhill Road Machinery Co., Dept. C&E, Galion, Ohio, or use the Request Card at page 18. Circle No. 86.

Engineering



brings you unitized batching, improved forms and a new way to finish concrete

Modern highway design demands top efficiency in highway construction machinery. Portable . . . versatile . . . automatic . . . fast.

That's why Heltzel Flex-Plane Engineering works to give you the most modern road-building equipment obtainable. Up-to-date engineering, for example, has produced a definite contractors' preference for Flex-Plane over all other makes. This preference is based, of course, on proved performance.

Find out now what Heltzel Flex-Plane Engineering can mean to you — call on actual users of Heltzel and Flex-Plane equipment, and prove to your own satisfaction that this is the *modern* equipment for modern highway construction.

HELTZEL DUAL DUTY FORMS, such as those shown in use on the Plattsburg SAC base, have been redesigned to assure fast setting and stripping with maximum strength-weight ratio. Sizes available to exactly suit your job requirements.



COMPANY • Warren, Ohio

For more facts, use Request Card at page 18 and circle No. 286

MAY, 1958



The new Lodestar semi-frameless, all-aluminum dump trailer weighs approximately 3,000 pounds less than a conventional steel unit. It is offered in lengths from 22 to 26 feet, and capacities from 20 to 31 cubic yards.

Aluminum dump trailer permits bigger payload

The Lodestar Corp. announces a semi-frameless aluminum dump trailer with an extra payload advantage estimated at 3,000 pounds.

The body is all aluminum except for a steel latching mechanism, bearings, bushings, and pins. As an added feature each bearing, bushing, and pin has a grease fitting.

The unit shown in the photo is 22 feet long, has a 26-cubic-yard capac-

ity, and weighs 8,900 pounds—including the 150 pounds of oil in the hydraulically operated, five-sleeve telescopic lifting cylinder.

The trailer is available in lengths ranging from 22 to 26 feet, and capacities from 20 to 31 cubic yards.

For further information write to the Lodestar Corp., Dept. C&E, Niles, Ohio, or use the Request Card at page 18. Circle No. 84.



TIME FOR DRILLING 3½" HOLES THROUGH 10" REINFORCED MERAMEC GRAVEL CONCRETE FLOOR CUT FROM 6 HOURS TO 30 MINUTES

JOB: Cut 150 holes 3½" diameter through 10" concrete floors for new conduit feeders in the warehouse section of the old Mart Building, now the St. Louis Area Support Center, St. Louis, Mo. The Building, constructed in 1932, was built of concrete containing Meramac gravel aggregate—"the next thing to flint". Chiseling these holes would have resulted in jagged and uneven holes, much dirt and noise, a big clean-up job and much patching to finish up the job and would have averaged six hours each for two men.

CONTRACTOR: The Sachs Electric Corporation, St. Louis, Mo.

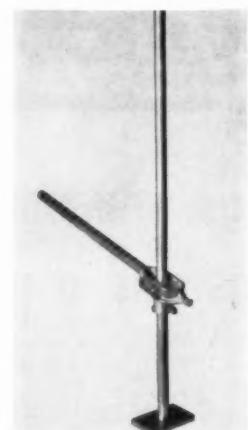
TOOLS: Model C Truco Diamond Drilling Machine with 350 rpm motor and 3½" O.D. Truco Diamond Drill Bit.

DESCRIPTION: Truco unit was used mounted on its mobile base and moved to location on its rubber tired wheels. Actual drilling time on each hole was from 6 to 9 minutes depending upon the number of reinforcing rods to be cut. Each completed hole averaged 30 minutes including all moving, set-up and core removal. (Compare with previous 6 hours for two men with air hammers.) Completed hole was clean and smooth and no patching needed. Truco unit is completely portable by one man and is designed for high speed drilling in practically any location. Wired for 110 V, 60 cycles or less.

WRITE FOR NAME OF NEAREST DISTRIBUTOR

Truco Swivel Division
WHEEL TRUEING TOOL CO.
25-3200 W. Davison Ave. • Detroit 38, Michigan

For more facts, use Request Card at page 18 and circle No. 287



is accomplished by inserting the hooked lever arm of the puller through a rectangular slot in the top of the stakes; the puller then operates in a manner similar to that used on an automobile bumper jack. It reportedly can remove stakes which are as long as 36 inches, has a mechanical advantage of 7:1, and weighs only 10 pounds complete.

For further information write to the Symons Clamp & Mfg. Co., Dept. C&E, 4249 W. Diversey Ave., Chicago 39, Ill., or use the Request Card at page 18. Circle No. 11.

New multipurpose rig lifts, digs, transports

The Hydra-Lift Model 60HB, equipped with a hydraulic digging attachment, and designed for installation on any truck with a Pitman utility body, is offered by the Pitman Mfg. Co.

Powered by the same hydraulic system that powers the Hydra-Lift itself, the digger attachment handles augers with diameters up to 24 inches. Augers with flights of varying lengths are available, as is a variety of boring heads.

With the digger on the Hydra-

SAFE • SPEEDY • DEPENDABLE

Derricks For every contractor's need—Stiff-Leg, Guy Line, Setter, A-Frame, Pole and Tripod, Roofers' Circle Swing Derricks... hand and/or power operated. Proved performers on every type of job. Safe and dependable.

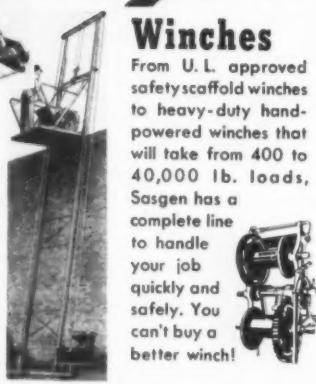


"PROVED IN SERVICE"

Sasgen-

Hoists

Made to fit your requirements—large or small. Complete units, like the Liftomatic, which reaches up to 90 ft., carries 1200 lb. load with electric or gasoline power—or Contractors' Drum Hoist Units, single or double drum, with capacities from 500 to 5500 lb. single line pull. Optional power.



Winches

From U. L. approved safety scaffold winches to heavy-duty hand-powered winches that will take from 400 to 40,000 lb. loads, Sasgen has a complete line to handle your job quickly and safely. You can't buy a better winch!

PRESS "TRIPLE TAPERED" DUMP BODY

Designed primarily for handling sand and gravel, this new Press Dump Body features a 3 taper design which allows for greater load on the front end to take advantage of strict weight laws in various states. Press quality construction assures low maintenance cost—more yardage moved at lower cost. Get the facts today on Press Dump Bodies—Write for descriptive literature.



PRESS TRAILER DUMP BODY

Designed to carry extra payload because of Press quality construction. Whatever your body requirements—you will find all of the facilities to build these bodies at Jacob Press' Sons. Before you buy your next body, write Press for quotation.



99 YEARS OF QUALITY
BODY BUILDING
JACOB PRESS' SONS, inc.



503 W. 33RD STREET • CHICAGO 16, ILL.

For more facts, circle No. 289

Handled by Leading Equipment Distributors Everywhere
WRITE FOR CATALOG AND PRICES
Sasgen DERRICK COMPANY

3127 W. GRAND AVE. • CHICAGO 22, ILLINOIS

For more facts, circle No. 288



Installed on a truck with a Pitman utility body, the Hydra-Lift Model 60HB, equipped with a hydraulic digging attachment, provides a self-contained unit that can lift loads of all kinds, dig a hole, and also transport men, tools, and materials to and from the job.

Lift's swinging boom, the operator can dig a hole at any point within a 180-degree, 26-foot radius of the truck. The Hydra-Lift may also be used to set a pole, without removing the auger attachment.

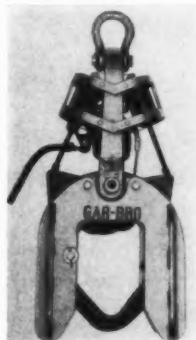
The heavy-duty utility body is equipped with clearance lights, directional signals, and a folding seat for personnel.

For further information write to the Pitman Mfg. Co., Dept. C&E, 300 W. 79th Terrace, Kansas City, Mo., or use the Request Card at page 18. Circle No. 5.

New 12-ton crane hook is trigger-actuated

A trigger-actuated crane hook that opens and closes pneumatically is offered by the Gar-Bro Mfg. Co.

This heavy-duty hook, with a capacity of 12 tons, is especially designed for handling 2, 3, and 4-cubic-yard concrete buckets, and is also useful for other lifting work. According to the manufacturer, the crane operator



simply lowers the hook so that the mechanical trigger within the hook circle contacts the bucket bail, which actuates the ratchet-type air valve that controls the opening or closing of the hook.

Overlapping lifting tongs provide an important safety factor; the hook cannot open under any load. In addition, Gar-Bro points out, integral guide arms assure easy hooking, and the need for a hook-on man is eliminated.

For further information write to the Gar-Bro Mfg. Co., Dept. C&E, 2415 E. Washington Blvd., Los Angeles, Calif., or use the Request Card at page 18. Circle No. 83.

For more facts on these products, circle the indicated number on the Request Card at page 18.

Offer wire rope lubricant in push-button container

The Whitmore Mfg. Co. announces the availability of its wire rope spray lubricant in a 16-ounce push-button container.

According to the manufacturer, protective applications of the lubricant penetrate to the rope core, minimizing internal friction and increasing rope life up to 300 per cent. In addition, the lubricant is said to eliminate rust and corrosion of rope and cable, and its non-gumming qualities substantially reduce "carry-back" of abrasive dirt and dust.

A free trial 16-ounce can of the Whitmore lubricant is available upon request.



For further information write to the Whitmore Mfg. Co., Dept. C&E, 3816 Iron Court, Cleveland 4, Ohio, or use the Request Card at page 18. Circle No. 13.



Barber-Greene Continuous Plants offer capacities from 20 to more than 200 tons per hour. Write for 24-page Principles of Barber-Greene Continuous Plants.

Barber-Greene produces 274,000 tons of mix for access road at Glen Canyon Dam

Two Barber-Greene Continuous-Type Asphalt Plants produced over a quarter million tons of mix for the vital, 26-mile access road to the Glen Canyon Dam site in Arizona. The plants maintained a combined output of 560 tons per hour.

The new Model 848-A Plant (above) mixed high-type asphaltic concrete at 210 tons per hour. The other plant produced base mix at 350 tons per hour. This consist-

ent high production allowed the contractor to produce and lay a total of 165,000 tons of base mix and 109,000 tons of asphaltic concrete in record time.

Two Barber-Greene Finishers easily kept pace with the fast-moving construction schedules. Operating speeds averaged 40 feet per minute, and 7% grades were negotiated regularly, despite 30-ton pay loads in some of the supply trucks.

Write for information on the world's finest asphalt road building equipment



The new Model 879-B Finisher offers a new transmission, higher speed tamper, new crawlers, and new power unit.

58-13-A

Barber-Greene 
AURORA, ILLINOIS, U.S.A.

CONVEYORS...LOADERS...DITCHERS...ASPHALT PAVING EQUIPMENT

For more facts, use Request Card at page 18 and circle No. 290

Product Parade

For more facts on these products, circle the indicated number on the Request Card at page 18.



New manual equipment for arc-welding process

A new manual unit for the application of its Aircomatic or inert-gas-shielded arc-welding process is announced by the Air Reduction Sales Co.

This new unit makes possible the selection of a variety of special-purpose components to form a complete assembly consisting of a gun, its fittings, a wire feeder, a control panel, and hoses and cables to carry cooling water and shielding gases. In the new model, both "push" and "pull" guns are available to cover the complete range of wire types and sizes from 0.020-inch hard to $\frac{1}{8}$ -inch aluminum. Completely portable, the equipment can be taken wherever an operator can go, the company states.

Generally, the Aircomatic process employs a consumable electrode in wire form. This spooled wire and the inert shielding gas (argon or helium) are fed into a weld at very high speeds by pressing the gun's trigger. The inert gas envelops the weld area to prevent atmospheric contamination, resulting in sound, smooth joints, according to the manufacturer.

For further information write to the Air Reduction Sales Co., Division of Air Reduction Co., Inc., Dept. C&E, 150 E. 42nd St., New York 17, N. Y., or use the Request Card at page 18. Circle No. 20.

New conveyor belt cleats permit fast field repair

Conveyor belt cleats for on-the-job application to rubber belts, permitting the equipment to return to service within a few hours, are offered by the Flexible Steel Lacing Co.

Designated Rema cleats, the units are made of rubber, and are applied to the belt surface with a self-vulcanizing rubber repair material imported from West Germany.

The new cleats are said to stand up exceptionally well in slag-loading operations.

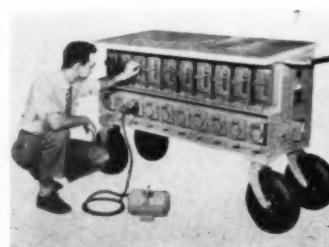
For further information write to the Flexible Steel Lacing Co., Dept. C&E, 4607 Lexington St., Chicago 44, Ill., or use the Request Card at page 18. Circle No. 70.

Winch kit for trucks has 8,000-pound capacity

A winch kit for front-end installation on any Model A120 (4x4) International truck is announced by the Braden Winch Co.

Designated LU2-6, the new kit consists of the Braden LU2 winch, an 85-pound unit with an 8,000-pound rated cable capacity. An outstanding feature is the ease and simplicity of its installation, according to the manufacturer.

For further information write to the Braden Winch Co., Dept. C&E, P. O. Box 547, Broken Arrow, Okla., or use the Request Card at page 18. Circle No. 19.



Cut shows the control buggy for the portable, ten-vibrator control system designed for prestressed-concrete operations by The Cleveland Vibrator Co. Each of the ten Model RC-30 electric vibrators develops up to 1,100 pounds of impact at 3,600 vibrations per minute.

Vibrator package offered for prestress operations

The Cleveland Vibrator Co. has available a portable package vibrator control system for prestressed-concrete operations.

The package consists of ten Cleveland Model RC-30 portable electric vibrators, mounting brackets, and a

portable mounted control-panel center for all vibrator control. All ten vibrators are plugged into the portable control panel, which receives power from an outside line.

According to the manufacturer, the individual vibrators, which are se-

Profits Go Up On Every Job



The Fruehauf "Toughy" I-Beam Telescopic Hoist Dump

With fabricated I-beam frame for rugged durability and top load-carrying strength on roughest possible terrain.

With 88" of inside width and a complete range of body and chassis lengths to provide the loading capacity you need.

A MORE RUGGED, LOW COST Dump Trailer than the new Fruehauf "Toughy" has never been built for profit-conscious, cost-conscious roadbuilders!

Its bridge-type fabricated steel I-beam chassis frame construction is your assurance of durable and constant service under maximum payloads on all kinds of terrain. Extra years of performance are actually built-in the Toughy—and that adds up to extra dollars of earnings for you.

Tandem and single axle units in a broad range of body and chassis lengths are available to suit your weight distribution requirements. Capacities range from 8 to 26 cubic yards. In the longer tandem axle unit, bridge formula design can be applied to provide you with maximum legal capacities. Low or high sides can be chosen—inside width is 88" in either case. Wide front coupler and no-hop P2 tandem are exclusive Fruehauf features.

There isn't a tougher, more durable, more profitable hoist-type Dump Trailer built today. Compare with the Toughy before you buy.

For Forty-Four Years—More Fruehauf Trailers On The Road Than Any Other Make

TRUEHAUF BUILDS AMERICA'S BIGGEST LINE OF DUMP TRAILERS, PLATFORMS, CARRYALLS, AND BULK TANKS FOR THE ROADBUILDING INDUSTRY.

cured to the form with two bolts, can be mounted and unmounted in minutes.

The RC-30 weighs only 48 pounds, and will develop up to 1,100 pounds of impact at 3,600 vibrations per minute, the company reports.

For further information write to The Cleveland Vibrator Co., Dept. C&E, 2828 Clinton Ave., Cleveland 13, Ohio, or use the Request Card at page 18. Circle No. 79.

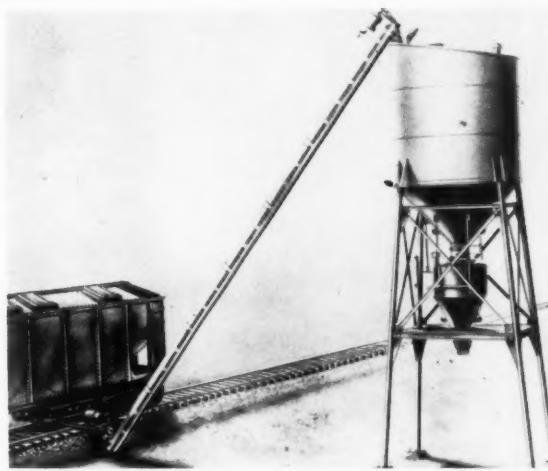
To obtain further information on any of the products described in this section, circle the number given at the end of the item on the Request Card at page 18.

Designed for use with both transit-mix or open trucks, this complete, portable batching plant has an overtrack or undertrack unloader, main tubular screw conveyor, single or double tank setup, and weigh-batcher.

Portable batching plant offered as complete unit

A complete, portable batching plant for use with both transit-mix or open trucks is available from the Andrews Machine Co.

Designed for in-line erection, the plant includes an overtrack or undertrack unloader (covered high-capacity screw-type, for attaching to hopper cars), main tubular screw conveyor (completely enclosed), single or



double tank setup, and weigh-batcher. All equipment is fully portable, and can be quickly set up on temporary or semipermanent sites or sidings to handle a variety of materials, the manufacturer states.

The welded steel bins are available in 8 or 11-foot diameters, single or double. Tanks are of 110 to 350-barrel capacity, with simple bolt connections and bracing. Both unloader and conveyor reportedly are of high-speed, high-capacity design, with completely enclosed reinforced tubular construction. The main conveyor can be installed horizontally or at angles up to 50 degrees.

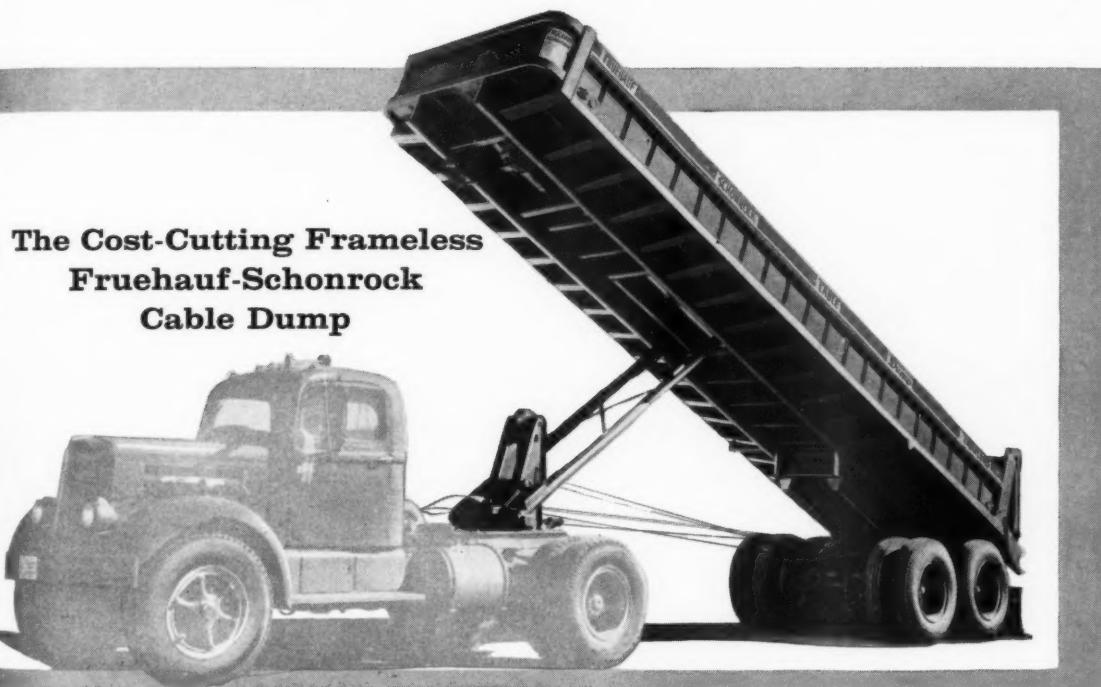
For further information write to the Andrews Machine Co., Dept. C&E, 359 E. Main St., Decatur, Ill., or use the Request Card at Page 18. Circle No. 64.

Announce line of ac, dc, diesel-powered generators

Pacific Mercury announces a new line of ac, dc, and diesel-powered generators.

The new units reportedly have such built-in features as rpm meters, triple-dipped mildew and fungus-proofed windings, automatic spark advance and ball bearings, built-in carrying handles, extra plug-in re-

Job With Fruehauf's 2 RUGGED NEW DUMP TRAILERS!



The Cost-Cutting Frameless Fruehauf-Schonrock Cable Dump

With redesigned booster fifth wheel for faster dumping with less strain on truck and cable than ever before.

With redesigned body frame for greater strength and increased "flex" in center beam to absorb even the greatest shock loads.

STILL THE MOST ECONOMICAL Dump Trailer in America to purchase or maintain, the simply-designed, ruggedly-built, frameless Fruehauf-Schonrock Cable Dump now has more cost-cutting, time-saving features than ever!

Faster dumping with less strain on truck and cable is achieved by new, longer booster arms and larger rollers. Higher stockpiles are provided by newly-designed offset tailgate hinges, which swing the gate quickly out high and clear of the pile. Shock loads of all kinds are more easily absorbed by the tougher, more flexible body frame.

The cost of this revolutionary cable unit still remains lower than that of most competitive hoist units with or without full chassis frames. Payloads are still up to 4,000 lbs. greater because of the frameless design and bridge formula application. All wheels stay fully grounded throughout dumping, and the cables can be used to get either truck or Trailer out of mud or holes.

No other dump of any kind does so much work for so little cost!



ceptacles, built-in electric starter, and trickle charge.

Four-cycle air-cooled engines power the generators, with the engines matched to the generator's capacity and engineered to handle reasonable overloads, according to the manufacturer.

For further information write to Pacific Mercury, Dept. C&E, 14052 Burbank Blvd., Van Nuys, Calif., or use the Request Card at page 18. Circle No. 89.



World's Largest Builder of Truck-Trailers

TRUEHAUF TRAILER COMPANY

10949 Harper Avenue • Detroit 32, Michigan

SEND FULL INFORMATION WITHOUT OBLIGATION ON THE NEW

CABLE DUMP

HOIST DUMP

NAME _____

COMPANY _____

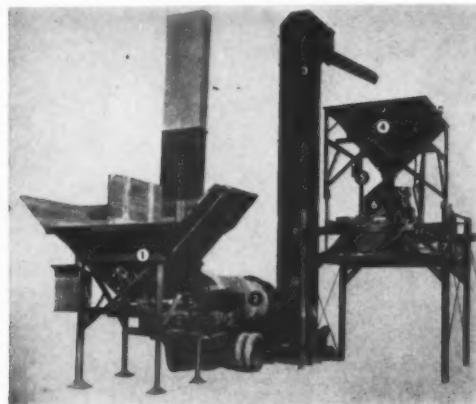
ADDRESS _____

CITY _____ STATE _____

For more facts, use coupon, or Request Card at page 18 and circle No. 291

MAY, 1958

113



Featuring a rated capacity of 30 tph, this Littleford Bros. portable asphalt plant incorporates a 5-ton-capacity dual feeder-bin that proportions and feeds aggregate directly into a 30-ton-capacity rotating dryer. The plant requires only one operator.

Portable asphalt plant requires only one operator

A portable asphalt plant with a rated capacity of 30 tph is announced by Littleford Bros., Inc.

On this unit, a 5-ton-capacity dual feeder bin proportions and feeds aggregate directly into the 30-ton rotating dryer.

A 5-ton-capacity storage hopper holds and discharges aggregate as required. Capacity of the batching hopper is 1,000 pounds.

The twin-shaft-type pugmill is a

1,100-pound-capacity unit said to thoroughly mix and dump a 1/2-ton batch every 60 seconds. A self-elevating platform permits discharging of bituminous concrete directly into trucks, the company states.

Described as practically automatic, the plant requires only one operator.

For further information write to Littleford Bros., Inc., Dept. C&E, 485 E. Pearl St., Cincinnati, Ohio, or use the card at page 18. Circle No. 40.



Make Coffing Super Powers the most efficient hoists in their class

Super Power hoists are designed around a new compound leverage principle. The levers, which replace the gears of conventional designs, enable workmen to raise loads with less handle pull than other hoists of the same capacities. Since use of the levers also reduces hoist size and weight, the workmen have 20% less weight to carry to the job.

Available in 1 1/2 and 3 ton capacities in aluminum, and 1 1/2 to 5 tons in malleable iron, Super Powers require little maintenance, since moving parts have sealed-in lubrication. Overload testing, "Safety Valve" handles, and constant load-locking ratchet and pawl assure safe operation. For complete details on these hoists, consult your Coffing distributor, or write to us for Bulletin L-3.

COFFING HOIST
DIVISION OF
DUFF-NORTON COMPANY

810 Walter Street • Danville, Illinois

COFFING HOISTS
Ratchet Lever
Spur Gear, Electric



DUFF-NORTON JACKS
Ratchet, Screw,
Hydraulic, Worm Gear

For more facts, use Request Card at page 18 and circle No. 292

Wheel kit adds mobility to masonry cutting units

The Eveready BrikSaw Co. announces the availability of a new Roll-A-Bout wheel kit for use on its 2-hp BrikSawMatic.

According to the company, the wheels are quickly assembled on the rear legs and are raised and lowered instantly by means of a handy lever arm. When the wheels are lowered, one man can easily move the Brik-

SawMatic around the job site.

The Roll-A-Bout wheel kit is also available for Eveready's 1 1/2-hp standard notch-type BrikSaw.

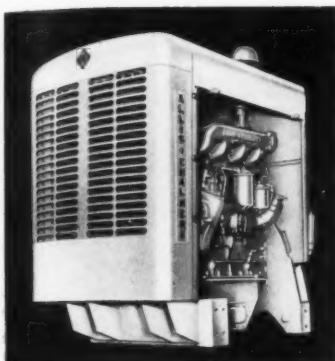
For further information write to the Eveready BrikSaw Co., Dept. 549, Dept. C&E, 1104 Union Ave., Kansas City 1, Mo., or use the Request Card that is bound in at page 18. Circle No. 39.



Write for information on SPECIAL TRAILERS and capacities thru 100 tons and more.

TRANSPORT TT INC. TRAILERS
CEDAR RAPIDS, IOWA, U.S.A.
"TRANSPORTATION ENGINEERING A SPECIALTY"

For more facts, use Request Card at page 18 and circle No. 293



Two new diesel units added to engine line

Two new diesel power units have been added to the engine line of the Engine-Material Handling Division of the Allis-Chalmers Mfg. Co.

The 88-hp Model D-344 and the 131-hp Model D-516 reportedly provide a steady horsepower output at practical working speeds from 1,000 to 1,800 rpm. The D-344 is a 4-cylinder engine, the D-516 is a 6-cylinder.

The over-all width of both the D-344 and the D-516 is 33 inches. Length from radiator to clutch of the D-344 is 64 3/4 inches, and of the D-516, 80 7/16 inches. Height to top of radiator of the D-344 is 51 1/8 inches, and for the D-516, 51 1/8 inches.

Both units are available in either closed or open-type models.

For further information write to the Engine-Material Handling Division, Allis-Chalmers Mfg. Co., Dept. C&E, P. O. Box 512, Milwaukee, Wis., or use the Request Card at page 18. Circle No. 97.

To obtain further information on any of the products described in this section, circle the number given at the end of the item on the handy Request Card that is bound in at page 18 of this issue.

Meter proportions water in ready-mix plants

The Neptune Meter Co. announces its Auto-Stop meters for accurately proportioning water in ready-mix concrete plants.

Ruggedly constructed, simply designed, and easily installed, the meters are operated by push-button feeding the number of gallons desired onto an easy-to-read register. When the exact quantity is delivered to the mix, an automatic tripping device cuts off the flow. The large numerals on the face of the meter keep pace with the flow, providing a visual check when delivery is finished. Cumulative totals are also registered.

According to the manufacturer, the flow can be stopped at any time, without affecting the meter reading or Auto-Stop setting, by pressing an emergency button on the register.

For further information write to the Neptune Meter Co., Dept. C&E, 19 W. 50th St., New York 20, N. Y., or use the Request Card at page 18. Circle No. 28.

This new double-wedge load socket reportedly permits one man, equipped with a hammer or small sledge, to release the cable in a few minutes' time. The bottom and smaller wedge is not removable, but slides forward and back on a pin-and-slot arrangement. The top wedge is completely removable and is large enough so that the cable can be wrapped around without difficulty. With the cable in place and pull applied, the two wedges slide forward and securely grip the cable. To release, it is only necessary to give either wedge a sharp tap with a hammer. This slides the bottom wedge back in its slot, releasing the pressure; the top wedge can then be lifted out and the cable removed. These load sockets are available in sizes from 1 1/8 inches through 3 1/8 inches, with single, double, or triple-eye connections. For further information on the double-wedge load socket write to the Page Engineering Co., Dept. C&E, Clearing Post Office, Chicago 38, Ill., or use the Request Card at page 18. Circle No. 93.



Cutting in sand and sandrock, one of Frank Montgomery's three 18-*yd.* C Tournapulls, heaps full load in 91'. Two L-W units average 5.15 minutes for complete 1456' load-haul-spread-return cycle. Nature of the abrasive, soft rock can be seen at the far side of cut for boat-basin.

Cut boat-basin 33' deep in sand and sandrock at Lake Thomas, Texas

Dirt contractor Frank Montgomery, Midland, Texas, specializes in oilfield roadbuilding. He also occasionally handles other dirtmoving jobs. 2 of Montgomery's 3 LeTourneau-Westinghouse C Tournapulls® with 18-*yd.* Fullpak® scrapers removed approximately 50,000 cu. yds. of tough, abrasive material, to construct a boat-basin at Lake Thomas Lodge, near Ira, Texas.

"C's" handle dry-land dredging

To provide sheltered water area for covered, floating storage of 100 boats, 18-*yd.* scrapers cut a basin 180' wide by 225' long, with 2/1 and 3/1 sloped ends. With bottom below lake-level, the excavation averaged 33' deep, to provide a water depth of 6' to 9' in the basin. New boat-storage area was then connected to an existing harbor by digging a 45'-wide channel with the 'Pulls*.

Bottom cuts in the channel were completed after sealing the narrow harbor entrance, and pumping out the water.

Load sandrock without ripping

Material was almost-dry sand, with many layers of sandrock... tough to cut, but easy-breaking once it was lifted. It was so abrasive that ripper teeth lasted only 3 days. Yet, without the services of a ripper (temporarily sidelined), each push-loaded Tournapull heaped big loads in average 1.63 min. over 91'. "C's" hauled up 3/1 slope, spread on the run, and returned over moderately rough roads... completed 1456' cycles in average 5.15 min.

Move big, profitable yardage

Supt. R. H. Stephenson estimates his Fullpaks moved payloads averaging 14 cu. yds. "Nothing can compare with

"CALICHE ROADS A SPECIALTY"

This slogan characterizes Frank Montgomery's regular operations in the oilfields... within a radius of several hundred miles of Midland, Texas. Mr. Montgomery continues the business of his father—who built the first caliche roads in the West Texas oilfields, back in the days of mules and horses. Montgomery operates a modern dirt-moving fleet, including 3 L-W C Tournapulls with 18-*yd.* Fullpak scrapers.

their loading ability," he reports. "As a former Tournapull and Fullpak operator, I know they'll move more dirt and move it faster than other scrapers. And they're easier on the operators... easier to steer, even in town traffic."

Owner Frank Montgomery says, "I really go for their maneuverability and speed. Tournapulls have definitely been the leader in production earthmoving equipment for years."

See a demonstration

You'll be amazed at the ease with which these fast, maneuverable 210 hp Fullpaks heap their loads... at their big output even in toughest material, and in extremely difficult footing. Call or write and we'll be more than glad to demonstrate! *Trademark CP-1510-DCJ-1

LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

For more facts, use Request Card at page 18 and circle No. 294

New features added to 3 to 5-ton roller

Huber-Warco announces two improvements for its 3 to 5-ton tandem roller.

The addition of a tail-shaft governor, in connection with the torque converter, permits the operator to maintain a pre-selected rolling speed, regardless of grade, without touching the hand throttle. The tail-shaft governor also allows more use of the engine compression as a braking factor on exceptionally steep grades, according to the manufacturer.

A foot-operated brake located on the transmission output shaft replaces the former hand-operated contracting band brake on the compres-

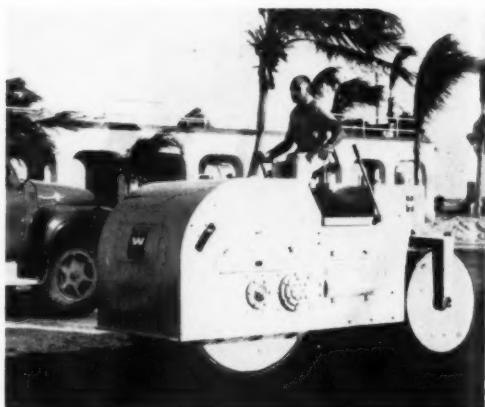
sion roll. The foot pedal is located in the center of the operator's deck.

Standard equipment on this roller includes a torque converter, water-cooled engine, spur gear final drive, dual controls, and adjustable tapered roller bearings on the kingpin and on both the guide and drive-roll axles.

In addition to the standard unit, the roller is also available with a towing attachment, or with a retractable wheel attachment.

For further information write to the Huber-Warco Co., Dept. C&E, 202 N. Greenwood St., Marion, Ohio, or use the Request Card at page 18. Circle No. 117.

One of the improvements announced for this Huber-Warco 3 to 5-ton tandem roller is a tail-shaft governor that permits the operator to maintain a pre-selected rolling speed, regardless of grade, without touching the hand throttle. The unit also features a foot-operated brake on the transmission output shaft.



For more data on any item, circle indicated number on card at page 18.

NOW, 3 NEW FORD INDUSTRIAL ENGINES...

**Up to a MIGHTY
534 cu.in.**



Ford "534" V-8



Ford "477" V-8



Ford "401" V-8



Meet the new Ford Super Heavy Duty V-8's... built to handle the big jobs easier, at less cost. The most modern in the industry, they feature

new high-turbulence combustion chambers... new fuel induction systems... new lubrication systems... and provide more horsepower per pound of engine weight than ever before possible.

Check Ford's full line of 4-, 6- and V-8 cylinder engines. Most are available as engine assemblies or complete power units, foot- or skid-mounted.



YOUR JOB IS WELL-POWERED WHEN IT'S FORD-POWERED



Ford "332" V-8



Ford "272" V-8



Ford "223" 6-cyl.



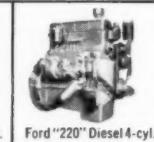
Ford "172" 4-cyl.



Ford "134" 4-cyl.



Ford "330" Diesel 6-cyl.



Ford "220" Diesel 4-cyl.

INDUSTRIAL ENGINE DEPARTMENT

FORD Division of FORD MOTOR COMPANY, P. O. BOX 598, DEARBORN, MICHIGAN

For more facts, use Request Card at page 18 and circle No. 295



It's a fact — under many conditions, dozer production can be boosted as much as 50% simply by installing Preco Back-Rippers! You convert deadhead time into productive time by ripping as you back. And ripping loosens packed clay, shale, rock, overburden, or other hard materials so that you do a smoother, faster, dozing job, and get a full load with less power.

There's a size of Preco Back-Ripper to suit your needs — available for all sizes and types of bulldozers... straight, angling or U-dozers.

So, if you'd like to make your present tractor produce like the next size larger, see your Preco-Caterpillar Dealer today! Name the date for a demonstration. For literature, write Dept. 58, Preco Incorporated, 6300 East Slauson Ave., Los Angeles 22, California.

**HOW TO BOOST
DOZER PRODUCTION
AS MUCH AS 50%**



PRECO®

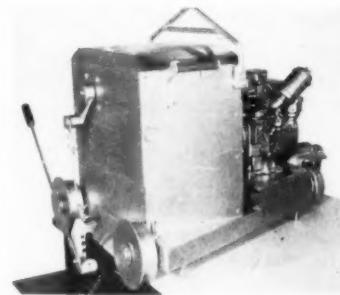
**BACK-RIPPERS
AUTOMATIC BLADE
CONTROLS**

For more facts, use Request Card at page 18 and circle No. 296

**Automatic pin puller
yanks 1,500 pins per hour**

An automatic pin-pulling machine said to pull up to 1,500 pins an hour without damage to forms or concrete is available from the Cleveland Formgrader Co.

Weighing 565 pounds, and powered by a 3-hp engine, the machine is designed to pull any size pin with a maximum load strength of 3,000 pounds.



According to the manufacturer, damage to concrete is eliminated because the pulling load is on the forms, and the pins themselves will have longer life because they come out vertically and without bending. Riding on rubber tires, the machine is easily moved from pin to pin, operates on either side without changes, and can be operated forward or backward.

Additional features include a lever-operated single-revolution clutch, sealed self-aligning ball bearings, and fingertip operating controls which work from either end of the machine.

For further information write to the Cleveland Formgrader Co., Dept. C&E, R. D. 1, Mills Road, Avon, Ohio, or use the Request Card at page 18. Circle No. 96.

**Tools cut through
thick concrete, metal**

The Oxweld ACL-3 Power Lance, a tool said to be capable of cutting through concrete or metal of any thickness, is offered by the Linde Co., Division of Union Carbide Corp.

Lengths of standard black iron pipe are fitted into the front end of the ACL-3, which is connected to an oxygen supply and a source of special Oxweld metallic powder. The oxygen and metallic powder are



Here the new ACL-3 Powder Lance is used to sever an 18-ton circular section from an 8-foot-thick reinforced concrete floor, at a reported saving of 40 per cent.

mixed in the pipe and carried to the material being pierced or cut by the consumable pipe. This mixture is ignited at the end of the iron pipe, producing an extremely high temperature reaction that melts both ferrous or nonferrous material in its path.

Operation of the Oxweld ACL-3 reportedly is simple; and the oxygen and powder valves operate independently, allowing the operator to shut the powder off at any time during lancing. This feature gives the operator a clear view of the reaction zone, increasing cutting efficiency.

The forward end of the ACL-3 mounts a quick-release chuck-type pipe holder. Unthreaded pipe or tubing can be inserted or removed with a quick, simple turn of the chuck.

Each lance is supplied with a handy repair kit said to include everything needed to maintain the ACL-3 under normal operating conditions.

For further information write to the Linde Co., Division of Union Carbide Corp., Dept. C&E, 30 E. 42nd St., New York 17, N. Y., or use the Request Card at page 18. Circle No. 105.

New truck mixers feature heavy-duty transmission

The Worthington Corp. announces its new Fleetbuilder and Fleetmaster lines of concrete truck mixers.

The Fleetbuilder model is driven through a heavy-duty sliding gear transmission in conjunction with a master clutch to control forward and reverse rotation of the mixer drum.

Standard twin disk clutches are used in the Fleetmaster model for controlling forward and reverse rotation of the drum. The multiple disks in these clutches are of steel and bronze construction, and run in a bath of oil.

Spiral bevel gears in both the Fleetmaster and Fleetbuilder transmissions are oversized and placed at the input end of the transmission for most efficient operation at normal engine speed. All other gears are spur-toothed, heat-treated forgings.

Both the Fleetbuilder and Fleetmaster lines are available in 8 sizes, ranging in capacities from 4 to 9 cubic yards.

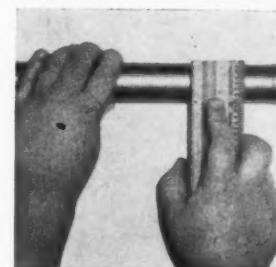
For further information write to the Worthington Corp., Concrete Machinery Division, Dept. C&E, S. Second St., Plainfield, N. J., or use the Request Card at page 18. Circle No. 99.

Tiny new vibrator head handy in tight forms

The Stow Mfg. Co. has available a $\frac{1}{8}$ -inch-diameter vibrator head which is run by a 5/16-inch flexible shaft connected to the standard Stow CU $\frac{1}{2}$ -hp Midget vibrator.

Designated Model 880, this head is described as ideal for the extremely narrow forms often required in precast and prestressed-concrete production. The 880 vibrator head is 10 inches long, and operates at 12,000 vibrations per minute.

For further information write to the Stow Mfg. Co., Dept. C&E, 443



State St., Binghamton, N. Y., or use the Request Card at page 18. Circle No. 51.

Can your
haul units
match these
advantages?



Before you buy your next off-road hauling unit, make this test to see if you are getting the most for your money. Examine the various makes of haulers in the light of these features — standard on LeTourneau-Westinghouse Rear-Dumps:

Hauls anywhere — With big, low-pressure tires, L-W Rear-Dumps safely haul capacity loads over rutted haul-roads, paved highways, city streets... haul cross-country over rough terrain, over rocky pit floors... through mud, sand, and over soft fills.

Maneuvers easily — 180° turns — within distance of less than its own length — plus power-steer, quickly positions Rear-Dump under dipper. Time normally wasted by conventional haulers jockeying back and forth to spot at shovel or fill is eliminated. Big, square-type body target speeds loading.

Dumps fast, clean — Flick of an electric switch actuates hoist-motor. Body lifts quickly to any desired angle, for spreading on the run... or for dumping over bank. At full-dump position, bowl is behind rear wheels, so dump is clean, doesn't

“bury” wheels. Streamlined body sheds material readily.

Cuts weather delays — Power-transfer differential automatically applies up to 80% of power to drive-wheel on firmest footing... pulls unit through mud, sand and soft materials which stop ordinary haulers. Front-wheel drive pulls unit off soft fills readily. Pivot-turn, through geared kingpin, “walks” prime-mover out of soft spots.

Provides maximum safety — Multi-disc air brakes have more wheel braking surface than any other type hauler. Low center of gravity, good visibility, power-steer, front-wheel drive, easy electric controls... all contribute to operator's confidence and safety.

Reduce maintenance — Having no hydraulics or jack-lines, no long

drive-shaft... no frame, sub-frame, springs or tie-rods... these Tournapull® Rear-Dumps are less subject to downtime for maintenance and repairs than any other type hauler. Slant-bottom bowl reduces shock damage when loading large chunks.

Add to all these advantages, the versatility of Tournapull's prime-mover — which can be converted to operate these matching trail units: scraper, bottom-dump, flat-bed, logging arch, or crane. Any of these interchangeable work-units cost about 25% of your original machine investment. You benefit 100%.

Check all the “plus earning advantages” Tournapull Rear-Dumps have to offer YOU! Ask for complete details on the size that fits your needs: 11-ton “D”, 22-ton “C”, or big 35-ton “B”, each a profit-maker.

R-1056-DC-1



LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

For more facts, use Request Card at page 18 and circle No. 297

A landscaping problem confronted the Fruin-Colnon Contracting Co., of St. Louis, in preparing the site of a new headquarters for an industrial firm of that city. On the western slope of the property, bordering a much traveled U. S. highway, was an embankment as steep as 1 to 1 in places. The problem was, after seeding the embankment and covering it with straw mulch, to keep the mulch from blowing or washing onto the highway and creating a potential driving hazard. To hold down the straw, a new wide-weave open-mesh fabric, made by the Bemis Bros. Bag Co., was rolled out over the ground and staked down with wooden pegs. The woven-paper mesh, said to be an economical fabric, not only holds the straw in place, but also serves to catch and hold moisture while preventing washouts. For further information about this new fabric, write to the Bemis Bros. Bag Co., Dept. C&E, 408 Pine St., St. Louis, Mo., or use the Request Card at page 18. Circle No. 110.



On-time delivery of long, light sections of Wheeling Corrugated Metal Pipe helps keep highway construction on schedule. The nestability and light weight of metal pipe help cut transportation costs.



Ordinary labor and equipment can install most sizes of Wheeling Metal Pipe. No breakage problems either — metal pipe won't crack or spall when dropped. Men can work faster, highway construction is speeded.



Flexibility under pressure of surrounding soil adds strength to Wheeling Corrugated Metal Pipe. Pressure is spread around the perimeter. Try a simple test with a garden hose (inset) to see how it works.



Long life of Wheeling Metal Pipe boosts its value in years to come. Holds up under freezing and thawing ... the constant pounding of traffic. In fact, metal pipe ordinarily lasts longer than the road itself.

How Wheeling Corrugated Metal Pipe helps you build longer-lasting highways faster, better, more economically

Add up the cost-cutting features of Wheeling Corrugated Metal Pipe. You'll come up with the lowest cost-per-year of any type pipe on the market. Handling and installation, upkeep and repairs—all are less. And Wheeling Metal Pipe is salvageable . . . often can be re-installed in a new location.

Wheeling Metal Pipe or Pipe Arch, in copper-bearing steel or copper-bearing pure iron, plain gal-

vanized or bituminous coated (with or without paved invert) comes in a wide range of gauges and diameters.

For full details on Wheeling Corrugated Metal Pipe, contact the Wheeling warehouse, culvert plant or sales office nearest you. Wheeling Corrugating Company, Wheeling, West Virginia.

WHEELING CORRUGATING COMPANY — IT'S WHEELING STEEL

IMMEDIATE DELIVERY ON ALL STOCKED ITEMS FROM THESE WAREHOUSES: Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Madison, Minneapolis, New Orleans, New York, Philadelphia, Richmond, St. Louis SALES OFFICES: Atlanta, Houston

For more facts, use Request Card at page 18 and circle No. 298

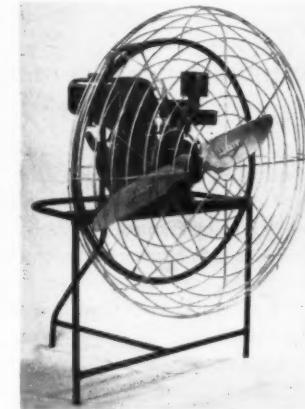


To obtain further information on any of the products described in this section, circle the number given at the end of the item on the handy Request Card that is bound in at page 18 of this issue.

Portable wind machine has several applications

A portable wind machine designed for a variety of applications is offered by Garrett Distributors.

Designated Pocket Cyclone, the unit provides a high-speed artificial wind for forcing combustion of brush, stumps, slash, or refuse fires, and for controlling smoke where fires must be set near highways or populated areas. It may also be used for temporary ventilation of tunnels or new build-



ings, and to dry plaster or masonry by circulating air, either with or without the aid of a salamander.

Powered by a Model 8B Briggs & Stratton engine, the Pocket Cyclone runs for hours on a gallon of gasoline. Its precision-balanced pusher-type propeller reportedly moves air at the rate of 23,700 cfm with the throttle open, and 7,500 cfm when idling. At top speed, air leaves the propeller at 65 mph. The throttle can be hand-set at any speed.

The Pocket Cyclone can be loaded into any jeep or pickup truck, and is easily handled by one man.

For further information write to Garrett Distributors, Dept. C&E, 800 Stevenson Ave., Enumclaw, Wash., or use the Request Card at page 18. Circle No. 129.



Aluminum electric hoists operate by push button

A new line of lightweight aluminum electric hoists is announced by the Coffing Hoist Division of the Duff-Norton Co.

Designated Quik-Lift, the hoists are available in models ranging from $\frac{1}{4}$ -ton to 2-ton capacities, and feature mechanically interlocked push-button controls. For convenience in pulling a trolley-mounted hoist, the control cord incorporates a strain cable. The plastic control station is shaped as a pistol grip, so that the operator can pull the trolley-mounted hoist and depress the buttons with his thumb at the same time. Control circuits are only 115 volts, regardless of hoist voltages.

The aluminum housing is constructed in sections to permit easy access to all parts.

A noteworthy feature is the design of the suspension units which permits changing from hook to lug, or shifting from single to double-chain lifting, by merely removing three screws and replacing or moving the suspension unit.

A complete line of accessories is available.

For further information write to the Coffing Hoist Division, Duff-Norton Co., Dept. C&E, 800 Water St., Danville, Ill., or use the Request Card at page 18. Circle No. 66.

New portable conveyor offered in several sizes

A portable conveyor with a capacity, when handling bulk materials, of 20 to 30 cubic yards per hour, is announced by the A. Palmer Scaffolding Co.

Designated E-Z-Lift, the unit comes complete with engine, and is said to operate at up to 60 degrees elevation. It can be carried by car, trailer, or pickup truck.

E-Z-Lift is offered in standard lengths of 16, 21, 23 $\frac{1}{2}$, 26, 28 $\frac{1}{2}$, 31, and 33 $\frac{1}{2}$ feet. A companion hopper, chute, and other accessories are also available.

For further information write to the A. Palmer Scaffolding Co., Dept. C&E, 3928 San Fernando Road, Glendale 4, Calif., or use the Request Card at page 18. Circle No. 102.

New vibrating screen available in 18 sizes

The Universal Engineering Corp. announces a new horizontal vibrating screen designated Screen Master.

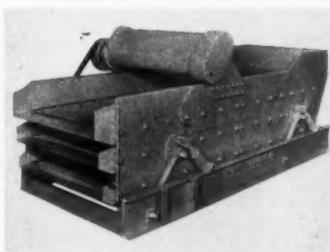
Design features include the replacement of conventional flat springs with cylindrical arms called "drag links", said to obtain a rigidity that gives a constant, even motion of the screen cloth.

The edges of clamp bars are rounded to make radial contact with

screen wire. Easy screen replacement is made possible by a removable feedbox side plate. Inspection and replacement of hydraulic bearings also have been simplified; bearings requiring replacement need not be burned out.

Parts are interchangeable on the Screen Master, available in 18 sizes.

For further information write to the Universal Engineering Corp.,



Dept. C&E, 625 C Ave. N. W., Cedar Rapids, Iowa, or use the Request Card at page 18. Circle No. 36.

West Texas contractor grades base for filling station area

Wilton Thomason, Denver City, Texas, uses 2 Adams 550 graders for road, airport, and other construction work throughout west Texas and eastern New Mexico. Here, one of his 123 hp "550's" prepares base for penetration asphalt seal coat . . . cuts a precise finish grade in compacted caliche around a new filling station in Denver City.

With engine vibration isolated from cab and frame, Alonso Ramirez works at ease . . . and fast! He says, "I've been operating for 36 years, and this '550' is sure 'tops'."

Rubber mounts at 4 suspension points absorb engine vibration . . . prevent its transmission to frame and cab. Freed from this fatiguing annoyance, operators work better

and more efficiently. Grader cuts more accurately. Machine lasts longer, because assemblies stay tighter . . . unit requires less inspection, adjustment, and maintenance.

SMOOTH GRADE...SMOOTH RIDE because engine is rubber-mounted

Cab comfort boosts output

Freed from distracting and fatiguing engine vibration, your Adams operator can handle more work per day . . . can produce more accurate grades. He's not bothered by "the shakes" that sap physical strength . . . not numbed by constant irritation. On an Adams, your operator works with a clear head—and a smile. He gives you full-measure of quality output . . . works steadily, right up to quitting time.

Longer grader life

Your Adams grader will last longer . . . yet cost less to maintain than machines with rigid engine mount. Because Adams' rubber mounts isolate engine vibration from the machine, there is less fatigue of metal and welds. Bolts stay tighter . . . precise fitting parts hold position and do not wear on mating mem-

bers. Blade mechanism is more rigid, requires less shim adjustment. You'll find that rubber engine mounts give added life to both stationary and moving parts . . . forestall maintenance problems . . . reduce downtime throughout the year.

Try it and see

Climb into an Adams cab. See and feel the difference that rubber engine mounts make in operator comfort . . . in machine protection. Note also the extra capacity for hard work that Adams builds into all models: 190, 150, 123, 115, 80 and 60* hp. Choice of General Motors or Cummins engine on 5 larger models. Feel free to call or write for complete information and demonstration without obligation.

*60 hp Model 220 not equipped with rubber engine mounts

*Trademark G-1479-DC-1



LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

For more facts, use Request Card at page 18 and circle No. 299



The light weight of this Anthony aluminum dump-truck body permits truckers to carry a greater payload. In addition, the high-strength aluminum alloy of which the body and frame are constructed provides maximum resistance to impact and abrasions.

Aluminum dump-truck body permits greater payload

A new lightweight, heavy-duty aluminum dump-truck body is announced by the Anthony Co.

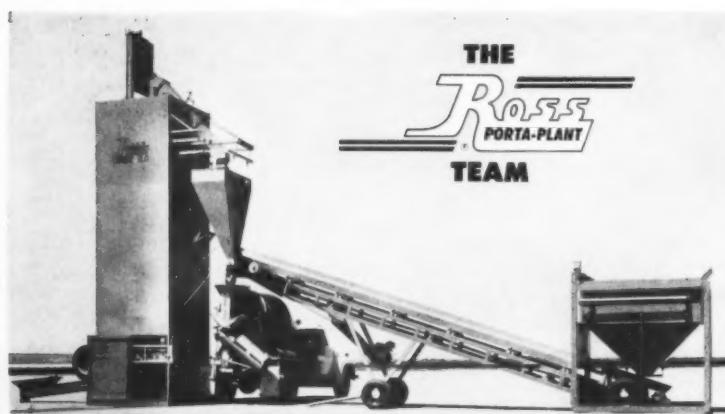
Both body and frame on the unit are constructed of an aluminum alloy equal in strength to 10-gage steel, the company reports.

In order to make the body as lightweight as possible—facilitating greater permissible payload—the hoist subframe has been eliminated. As a result, body sills are deeper. The body is completely welded.

Dumping action is provided by means of the Anthony Teleramic heavy-duty lift hoist. The forward location and point of lift of the 3-stage telescopic hoist shifts the weight of the load forward over the front axle, permitting a greater payload on the rear.

For further information write to the Anthony Co., Dept. C&E, 1750 Baker St., Streator, Ill., or use the Request Card at page 18. Circle No. 15.

HIGH PRODUCTION AT LOW INITIAL COST



THE ROSS PORTA-PLANT TEAM . . . the perfect combination for complete ready-mix batching . . . HIGH PRODUCTION AT LOW INITIAL COST. A team designed for economical, simple, easy operation . . . giving maximum performance and years of trouble-free use. This highly maneuverable duo is ready for operation within minutes after arrival at job site and can be operated by one or two men with ease.

INDEPENDENT BULK CEMENT BATCHING PLANT SPECIFICATIONS

Capacity: 220 bbls.
Traveling Dimensions: Length: 31'6", Width: 7'0", Height: 12'4".
Silo Dimensions: Length: 7'0", Width: 7'0", Height: 25'0".
Scales: 5,000# capacity in 2# integrals with over and under indicator.
Cement Hopper: 42-cu.-ft. capacity with dumping height of 12'4".
Receiving Hopper: 36" x 18".
Screw System: 9" for loading and elevating with 150 bbls. per hour capacity.
Engine: VH4 Wisconsin 30 HP with clutch, starter and generator.
Empty Weight: 13,500#, Tires: 750-20, Complete Air System.
Special: 350 bbls. model also available.
Available with air controlled gates.

3 1/2 AND 6 YARD PLANTS CONDENSED SPECIFICATIONS

POWER: 9-HP, air-cooled gasoline engine with reduction gear. Mounted for easy starting or servicing.

CONVEYOR: Sealed, troughing and return carriers, 24" 4-ply belt with housing.
BIN: 3/16" heavy-gauge steel bin; locks for traveling.

SCALES: Cardinal 3 beam, 10,000#, 8,000#, and 3,000# on the 3 1/2 yard model; 14,000#, 10,000#, and 10,000# on the 6 yard model; each with over and under indicator. Fully visible to operator.

HEIGHT: Extreme height at bin 7'6" (3 1/2-yd. model) 9'0" (6-yd. model).

Exclusive Export Representative: P. J. Wolfson Co., Inc., 150 Broadway, New York 38, New York

CONTACT US FOR THE NAME OF THE DEALER NEAREST YOU

ROSS PORTA-PLANT

Box 446

Phone 2697

For more facts, use Request Card at page 18 and circle No. 300

Brownwood, Texas

120

Flashing-light barricade completely weatherproof

A flashing-light barricade, with lights built into the panel for protection against flying objects, is available from the Traffic Equipment Corp.

Designated Sentry, this ruggedly constructed and lightweight unit reportedly provides 2,200 hours of continuous flashing with each new battery.

The flashing-light system is tamperproof, and will operate under all weather conditions, according to the manufacturer.

For further information write to the Traffic Equipment Corp., Dept. C&E, 2064 S. Bannock St., Denver, Colo., or use the Request Card that is bound in at page 18 of this issue. Circle No. 38.

BRUNNER & LAY ROK-BITS and COYOTE HOLE DRILLING PAY-OFF

for J. B. Stringfellow Co. supplying up to
20 ton Capstones for mile-long breakwater



• Drilling the dense, hard blue granite at the Riverside, Calif. quarry of J. B. Stringfellow is a test of any bit. Brunner & Lay carbide Rok-Bits are used 100%. They drill straight, ROUND, easy-to-load holes. Provide better chip clearance; so bit works in new rock, not its own cuttings. Offer deep seated, generous carbides that stay put to give you big daily tonnage, at lowest cost. See your dealer, or call our nearest office. Ask for NEW, complete catalog #756, on your letterhead, stating your position. Brunner & Lay, Inc., 9300 King St., Franklin Park, Ill. Our 76th year. Plants & Warehouses: Philadelphia; Asheville; Birmingham; Dallas; Denver; Los Angeles; Portland, Ore.; Montreal.

The quarrymen sink tunnel holes 50 to 60 ft. deep into the granite face. Horizontal spacing is about 100 ft. The ends of the straight-in-tunnels are squared off and connected by 5 x 5 ft. bore, parallel with the quarry face. Rock required for job totals over 1,000,000 tons.



Alloy and
carbon
drill steel



Brunner & Lay carbide ROK-BITS in these body types—cross, chisel, "X", cutaway, taper socket. Furnished in standard wagon drill and hand held drill threads also—1,000; 700; 600; 400; 200 and J-7.50 threads. Bit sizes up to 6 1/2-in. in our Hole-Master.

Brunner & Lay Products

CARBIDE ROK-BITS • INTRA-SET STEEL • DRILL RODS • COUPLINGS, ADAPTERS & EXTENSION STEEL

For more facts, use Request Card at page 18 and circle No. 301

CONTRACTORS AND ENGINEERS



Torque wrench capacity doubled with extensions

The Owatonna Tool Co. has available extensions that double the effective length of its torque wrenches, thus doubling, in turn, the wrenches' rated capacity.

The new OTC extensions are made up of two pieces: a tubular steel adapter arm with a square opening to fit the torque-wrench drive, and one of the many drive-end accessories including box wrenches, 15-degree and double-offset wrenches, and ratchet and fixed $\frac{3}{4}$, 1, and $1\frac{1}{2}$ -inch drives.

No complex figuring is needed when using the OTC extension. Because exerted torque is doubled, the dial reading is simply multiplied by two.

For further information write to the Owatonna Tool Co., Dept. C&E, 381 Cedar St., Owatonna, Minn., or use the Request Card at page 18. Circle No. 120.

One-piece fastening unit for concrete forming

The Ply-Tie holder, a fastening device designed to hold both the form tie and waler in place in plywood concrete forms, is announced by Trueforms, Inc.

With the Trueform system, the tie holes are pre-drilled in the plywood, using a standardized pattern. Then, the contractor tacks 2×4 studs to the



plywood, with one of the studs backing the joint. One arm of the Ply-Tie bracket has a tear-drop slot which fits over the head of a special form tie; the other arm holds the waler in place.

The same holder can be used for light, medium, or heavy construction by varying the spacing and thickness of studs and walers.

The Trueform system is applicable for most forming requirements, including walls, columns, beams, etc.

For further information write to Trueforms, Inc., Dept. C&E, 414 Times Square Bldg., Seattle 1, Wash., or use the Request Card at page 18. Circle No. 27.

Shaker screen handles number of gradations

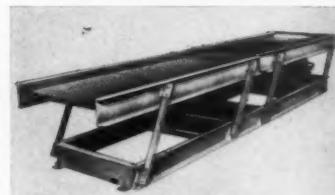
A new shaker screen designed for fast, efficient scalping and sizing of heavy bulk materials is offered by the Syntron Co.

A variety of screen surfaces—woven wire cloth, wedge slot, flange lip, or perforated plate—can easily be fitted into the screen box of either or both sections.

The unit is also adaptable to some dewatering processes. In addition, by replacing screen surfaces with flat steel plates, it can become an efficient picking table, according to the manufacturer.

The screen can be base or suspension-mounted.

For further information write to



the Syntron Co., Dept. C&E, 227 Lexington Ave., Homer City, Pa., or use the card at page 18. Circle No. 4.

Accept this

L-W

CHALLENGE

... to UP your

PROFIT MARGIN

Yes ... prove to me that L-W 210 hp C Tournatractor will handle more of my tractor jobs, in less time, at a lower cost. Phone me on or about at to arrange for (date) (number) a demonstration on one of our jobs.

Name Position

Company

Address

City State

(Fill out and mail to your LeTourneau-Westinghouse Distributor)

We will prove to you that

210 hp Tournatractor® handles more tractor jobs ... faster ... at less cost

than any other tractor in its class

During the past few years the popularity of this heavy-duty rubber-tired tractor has increased rapidly, and there's good reason for it! As work areas grow bigger and bigger, the need for tractor speed and mobility becomes more and more important. And speed and mobility, as well as power and traction, are the plus-values you get in the 17 mph, 210 hp Tournatractor.

The place for Tournatractor in your fleet is on hit-and-run jobs, stockpiling, haul-road maintenance, backfilling, towing compactors, leveling fill, handling production push-loading, doing widely-scattered dozing jobs that you want done in a hurry. There's no waiting for truck and trailer, no time lost loading and unloading. Tournatractor "runs" from job to job, often completes one job and begins another before a slow-moving crawler gets started. The price? ... probably less than any other tractor of similar weight and horsepower, and certainly less expensive to maintain and operate.

It will cost you nothing to *find out* about Tournatractor. Fill out the above "request for demonstration" on one of your jobs. Mail it to your LeTourneau-Westinghouse Distributor.



Operators like Tournatractor's smooth torque converter that balances power to load ... its electric push-button controls ... its up-front

clear view ... its big, safe-stopping brakes. And you will like the extra daily job completions your operators will be able to turn in!

CT-1928-DC-1

LETOURNEAU-WESTINGHOUSE COMPANY

A Subsidiary of Westinghouse Air Brake Company

WHERE QUALITY IS A HABIT

PEORIA
ILLINOIS



For more facts, use Request Card at page 18 and circle No. 302



Designed for fast on-the-job erection and easy handling, this new Heltzel unitized automatic aggregate batching plant dismantles in three sections, which can be transported by existing equipment without the need of special permits. This particular batching setup includes the new Heltzel E-4 cement plant. With integrated elevator and twin batchers, the entire plant is arranged "in line" so that batch trucks can drive straight through. All batching mechanism operates automatically, being actuated by the truck driver who touches a button without leaving the truck. For further information about this aggregate batching plant, write to **The Heltzel Steel Form & Iron Co., Dept. C&E, Warren, Ohio**, or use the Request Card at page 18. Circle No. 46.

MOVES with the JOB! NO CONCRETE PITS!



THURMAN Portable Truck Scale



OTHER THURMAN SCALES:

PIT • WAREHOUSE • INDUSTRIAL • WHEELBARROW
LIQUID WEIGHING • BATCHING • AUTOMATIC

CAPACITIES: 20 to 52 tons
DECK LENGTHS: 18 to 43 ft.

For more facts, use Request Card at page 18 and circle No. 303

Sets up in minutes . . . accurate, precision weighing on-the-site. Complete steel deck construction. Low original cost . . . no maintenance costs. Can be installed as a pitless scale. Saves pit costs. **WRITE OR WIRE FOR BULLETIN 601**

Precision Scales

THURMAN

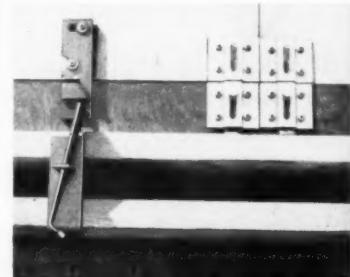
Since 1918

THURMAN SCALE COMPANY, 156 N. 5TH STREET
DEPT. CE-2, COLUMBUS, OHIO

Hardware adapts forms to heavier applications

A new development in stack plate hardware, said to make it possible to adapt economically standard Simplex forms to heavier applications, is announced by Simplex Forms System, Inc. The method is adaptable to poured walls or foundations up to 10 feet and may, in some cases, be recommended for heights up to 12 feet, the company claims.

The Simplex development utilizes stamped, heavy-gage steel plates,



which are mounted in sets. A female plate is attached to the bottom corner of each panel (as illustrated) or to the top corner of the mating panel if preferred. A corresponding male plate, equipped with a locking wedge, is attached opposite the female plate. To secure the forms and permit the running of tie wires between the panels for greater strength, standard Simplex locking levers are mounted vertically between the stacked panels.

While regular basement foundation forms do not use or require walers under the Simplex system, field testing reportedly showed that stacking forms 10 feet and higher required both walers and stiff backs for pouring straight, uniform walls. To answer this need, a double-button locking device made of treated steel is provided. These devices permit secure alignment of 2 x 4 walers fitted with steel clamps, and their location keeps the tie wires completely free of walers, according to the manufacturer.

For further information write to Simplex Forms System, Inc., Dept. C&E, 5605 Industrial Ave., Rockford (Loves Park), Ill., or use the Request Card that is bound in at page 18. Circle No. 123.

THIS*
is the Completely Re-Designed
MONATCO
Asphalt
HEATER-PLANER

* SERIES M-2



Can be equipped with scarifying teeth, to soften and efficiently remove old pavement.

U. S. Patent No. 2,705,906. Other patents pending.

For complete information and cost operating data, ask your dealer or write:

MONATCO MFG. CORPORATION • 1401 Woodland, Kansas City, Mo.

Dealership
available
in a
few areas

GVW's in new tandem line range to 52,000 pounds

A new line of tandem trucks is announced by the Reo Division of the White Motor Co.

Designated "C" Series, the line includes five gasoline-powered 6 x 4's, one gasoline-powered 6 x 6, and two 6 x 4 diesel units. GVW's for the series range from 35,000 to 52,000 pounds.

The C-330 is rated at 35,000 pounds. It includes a 7,000-pound front axle, with 9,000 and 11,000-pound axles available. The rear axle is the Eaton 28M tandem with a capacity of 28,000 pounds.

The C-430, successor to Reo's F-506 line, features a wide range of available front and rear axles, as well as main and auxiliary transmissions. This unit is rated at 42,000 pounds.

The C-436, a replacement for the F-506M, permits front-axle loadings of 14,000 pounds, and increases legal payloads up to an extra two yards of concrete.

The all-wheel-drive C-440 replaces the F-226 (6 x 6).

The C-530 and C-536 are larger-capacity units, which are adaptable for those states permitting heavier legal axle loadings. These vehicles include a choice of three tandem rear axles, and have full air brakes as standard equipment. GVW's, depending on axles, range from 46,000 to 52,000 pounds.

For further information write to the Reo Division, The White Motor Co., Dept. C&E, Washington Ave., Lansing, Mich., or use the Request Card that is bound in at page 18. Circle No. 106.

New motor starter has many applications

Allis-Chalmers offers its Size 6 full-voltage motor starter, designed to control cage motors on crushers, pumps, blowers, furnace control, and specialized jobs such as automatic-stop-control of vibrating machines and duo-control of compressors.

The starter is rated at 400 horsepower maximum at 440 volts, 3-phase; and 200 horsepower maximum at 220 volts. According to the company, its outstanding feature is a dc-operated magnet which gives positive drop-out and pick-up characteristics for ac motors. The selenium rectifier and the control transformer are furnished.

The Size 6 starter incorporates a Type 425 contactor with arc centering blowout, a principle of arc interruption said to eliminate the need for conventional blowout coils.

For further information write to the Allis-Chalmers Mfg. Co., Dept. C&E, Milwaukee, Wis., or use the Request Card that is bound in at page 18. Circle No. 111.

For further information on any product described in this section, circle the indicated number on the Request Card at page 18.

The new Reo tandem line includes five gasoline-powered 6 x 4's, one gasoline-powered 6 x 6, and two 6 x 4 diesel units. GVW's for the series range from 35,000 to 52,000 pounds.



Support of these slab forms was quickly and easily accomplished from above with the Richmond Free Fit Hanger Frame-Ty. (Bridge above Ardsley over Saw Mill River Parkway—part of New York State Thruway construction; Raylin Construction Corp. and The Lynn Corporation, general contractors.)

Study of Slab Form Support Shows Savings with Richmond System

By what standards do contractors measure the effectiveness of flat slab form support methods? Which support systems are proving most helpful?

A survey brought out the following facts: *experienced contractors measure the effectiveness of flat slab form support systems in terms of three things: the degree of speed, safety and economy which they bring to a job.*

Loose wire is no longer used extensively because it meets none of the above three requirements. The use of wire beam saddles also is becoming less common. Although prefabricated to size, they are non-adjustable, and there is no positive means of tightening against the steel to prevent leakage of concrete.

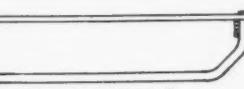
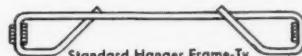
Posting or "horses" are still used but this method is comparable to bracing wall forms. Prefabrication costs are high and erection is slow because of wedging and nailing usually required at the bottom flange of the beam. On high structures and deep beams this procedure is dangerous because the men have to reach down to the bottom flange to make the final tightening adjustment.

Richmond Hanger Frame-Tys are ideally suited to hang this type of

construction. These units in Standard, Free Fit or Offset types (see illustrations) can be adjusted for various slab heights and haunch conditions. Their established safe working loads enable the contractor to take full advantage of lumber strength and hanger capacity.

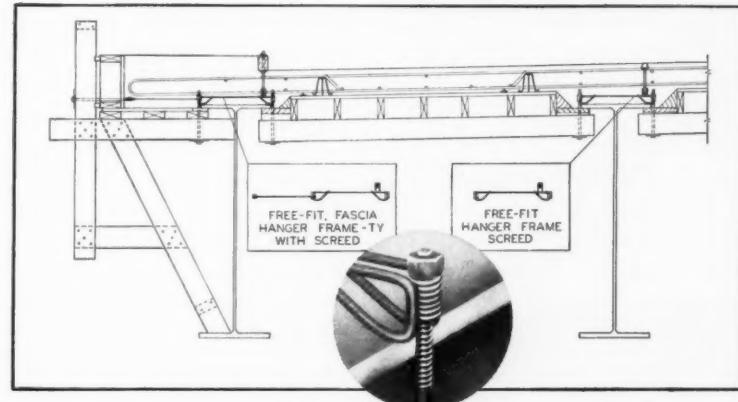
Richmond Standard and Offset Hanger Frame-Tys can be erected with a minimum of reaching under the top flange of the beams. Richmond Free Fit Hanger Frame-Tys have an

additional advantage: all tightening is done from the top of the hanger by means of the nuts (see circle in large illustration), the Tylag passing freely thru an oversized coil.



Dual uses of these Richmond Hangers have become standard: Fascia Hanger Frame-Tys used not only to hang the forms but also to tie in the Fascia Ty; a variation of this is the 45° Fascia Hanger Frame for light overhang, where one 45° bolt supports the fascia overhang and hangs the form; Hanger Frame Screeds combine support of the deck forms with an adjustable base for screeding or supporting curb forms.

Richmond Hanger Systems have reduced the contractor's overhead in time and materials, added safety to his operation and improved the quality of his work. The various types of Richmond Hanger Systems and their applications are detailed in the NEW



Richmond Catalogue. Write for your copy. Or, if you have specific concreting problems, Richmond's Technical Division or field men will be glad to advise you.

Write: RICHMOND SCREW ANCHOR COMPANY, INC., 816 Liberty Ave., Brooklyn 8, N.Y. or 315 S. 4th St., St. Joseph, Mo.





Featured in the new Wagner line of all-purpose 4-wheel-drive tractors is this 300-hp Model 24, a 35,000-pound unit with a turning radius of 11 feet 7 inches. An insulated cab with air conditioning is standard equipment.

New 300-hp tractor has many improvements

A new all-purpose 4-wheel-drive tractor is announced by Wagner Tractor, Inc.

Designated Model 24, the 35,000-pound unit is powered by a 300-hp Cummins diesel engine. Standard equipment includes such items as: insulated cab with air conditioning; automatic cut-off switch for oil pressure and water temperature; temperature gages for transmission, transfer case, differential and engine; air clutch and brakes; four headlights and four rear floodlights. A distinctive feature is the reverse slope and dust-free windshield, both front and rear, with tinted safety glass.

All standard Wagner features are

incorporated into the new unit.

Four-wheel drive and 4-wheel positive hydraulic steering are accomplished through Wagner's Pow-R-Flex center-hinge coupler. This method employs two pins and hydraulic cylinders, taking the steering action equally through two lightly loaded driveshaft joints. No steering clutch or brakes are used, thus eliminating loss of power from turning.

The turning radius of the Model 24 is 11 feet 7 inches.

For further information write to Wagner Tractor, Inc., Dept. C&E, 8027 N. E. Killingsworth, Portland, Ore., or use the Request Card at page 18. Circle No. 22.



NOW... provide COMPLETE containment of water, wastes, brines and sludges with



Pre-fabricated "HYDROMAT" Asphalt Liners provide the ideal liner for all domestic, industrial and recreational facilities where the containment of water, wastes, sludges, brines, etc. demand a very efficient, economical and impervious lining material. "HYDROMAT" is quickly and easily installed as a monolithic liner with mechanically sealed joints . . . will expand and contract with soil movements without rupturing or breaking the seal. Installed over (exposed) or under earth, concrete,

gunite, steel or other materials . . . provides the practical answer to the problem of re-lining old, cracked concrete or gunite linings. "HYDROMAT" may be safely used for the containment of potable water in clear well construction and its ruggedness and durability permit its use as a fully exposed lining in large reservoirs to depths exceeding 50 feet. "HYDROMAT" is available in three thicknesses, $\frac{1}{2}$ ", $\frac{1}{4}$ " and $\frac{5}{32}$ ", in 4' widths and lengths up to 15' . . . longer lengths available on special request.

For complete installation and technical data write today for your copy of the "HYDROMAT MANUAL".



PRODUCTS FOR BETTER CONSTRUCTION

W. R. MEADOWS, INC.

13 KIMBALL STREET
ELGIN, ILLINOIS

For more facts, use coupon, or Request Card at page 18 and circle No. 306

W. R. Meadows, Inc.
13 Kimball Street, Elgin, Illinois

Gentlemen:

Send my copy of the "HYDROMAT MANUAL".
 Have representative call.

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**LOW COST POWER
for WRECKING-SMASHING**
**FREDERICK CAST Semi-Steel
DROP BALLS**

Tough, rugged Frederick Drop Balls eliminate expensive drilling, blasting . . . deliver smashing low cost power when you want it, where you want it. Exclusive "Pear-shape" design drops straight—swings true—withstanding greater impact. Balls 4000 lbs. or over are made of extra durable nickel steel—or special alloys furnished on request. "E-Z" Swing recessed steel eye gives greater cable protection plus free swinging action. Balls can be furnished with replaceable pins. Use Frederick Cable Weights (135 & 250 lbs.) and Frederick Swivels on all size balls for true, safe cable performance. Special release hooks for free dropping also available.

Wide range of sizes and weights
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Write us today for prices and illustrated literature; order Balls direct or see your nearest Equipment Dealer.

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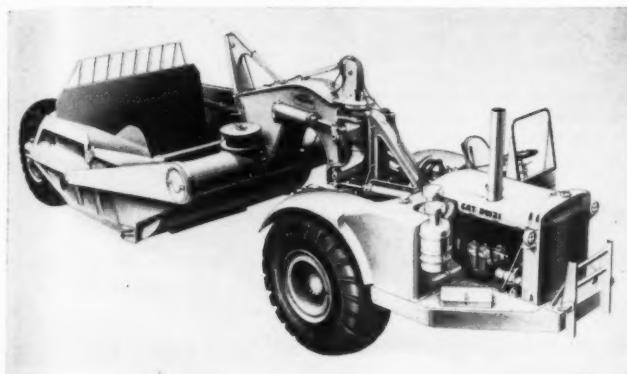
Makers of Manhole Frames, Covers and Steps • Storm Gratings
Meter Frames and Covers • Centrifugal Pumps • Grey Iron Castings

For more facts, use Request Card at page 18 and circle No. 307



For further information write to the Crosby-Laughlin Division, American Hoist & Derrick Co., Dept. C&E, P. O. Box 570, Fort Wayne, Ind., or use the Request Card at page 18. Circle No. 137.





New wheel tractor series features 320-hp engine

A new series of DW20 and DW21 wheel tractors is announced by the Caterpillar Tractor Co.

Designated Cat DW21 (Series D) and DW20 (Series F), the tractors feature a Super-Turbo engine designed to provide a maximum horsepower output of 320, accompanied by improved torque rise characteristics. Operationally, these improvements combine to give the new machines increased lugging ability and higher travel speeds, according to the manufacturer.

An improved air-induction system provides accurate control of turbo-

charger speed over its complete range, and delivers more air to the engine. This control reportedly allows the engine to operate at maximum efficiency regardless of its changing load requirements.

Top speed of the new Cat DW21 is 22.6 mph, compared to 20.5 mph on the previous series. Top fifth-gear speed on the DW20 is 35.8 mph, an increase of 3.7 mph over the previous model.

For further information write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 42.

Hydraulic push-dozer adds maneuverability

The Shepherd Machinery Co. announces the Paralift Model M484 cushioned hydraulic push-dozer for use with the Caterpillar D9 tractor.

According to the company, the unit is designed to provide greater maneuverability while lessening the possibility of scraper tires being gouged by the dozer. It will also provide the necessary down pressure for push-loading scrapers and for tandem rip-ping.

Manufactured from high-tensile-

strength USS Carriloy T1 steel, the Paralift is said to have exceptional resistance to impact and abrasion.

The dozer is inside-mounted with a special semi-parallel linkage feature. Rubber bushings are used to absorb initial contact shocks.

For further information write to the Shepherd Machinery Co., Dept. C&E, 3400 S. San Gabriel River Parkway, East Los Angeles 22, Calif., or use the Request Card at page 18. Circle No. 12.



Jackson FIBER GLASS HATS and CAPS surpass all Federal tests for construction workers' safety hats. In eight standard colors, others in quantities.



The Jackson 'TOP HAT' for Safety . . . Jackson's 'LIFE GUARD' offers unequalled protection by surpassing Federal Specifications for construction workers' and Edison Institute tests as well. A HAT and a CAP in white, yellow, and grey.

COMBINATIONS of Safety Caps available with welding helmets, goggles, face shields.

tops

• TOPS IN COMFORT

To men who wear safety hats all day long, comfort is important. Jackson hats and caps fit well and bear smoothly and evenly on the head.

See how little it takes to fit the headband to clearly marked hat sizes. And, being easy to fit, men will fit these hats accurately, so they stay on better in windy weather. Chin straps and winter liners are also available.

The polyethylene headband is smooth and flexible, yet firm enough to hold its shape. A soft-backed leatherette sweatband fits all around.

• TOPS IN STYLE

They protect without looking bulky and have a well designed, uncluttered look. Easy to clean, they keep their shiny, smooth finish.

• TOPS IN SAFETY

Thorough comparative testing against published industry-accepted standards proved that Jackson's three types of safety hats, each in its own class, offer an extra margin of safety. They should be your choice.

Jackson Products

AIR REDUCTION SALES CO., A DIVISION OF AIR REDUCTION CO., INC.
31739 Mound Road, Warren, Michigan
Sold through Welding Supply and Safety Dealers

For more facts, use Request Card at page 18 and circle No. 308

MAY, 1958

Machine removes dried concrete from equipment

A flexible-shaft machine designed for quick and easy removal of dried concrete from tools and equipment is announced by Wyzenbeek & Staff, Inc.

The unit employs a guarded, wide brush assembly mounted on a straight head, rotating at the speed of the motor, and powered by either a fully enclosed, dustproof electric motor or a gasoline engine.

The cleaner head of the unit is equipped with suitable handles for maximum maneuverability, and is attached to or removed from the flexible shaft of the machine by means

of the Wyco quick-change device. The cleaner head may be used with up to 20 feet of flexible shaft.

This same flexible-shaft machine can also be used for concrete grinding, concrete core drilling, concrete hole cutting, or grinding in iron and steel, by using other Wyco attachments equipped with the quick-change feature.

For further information write to Wyzenbeek & Staff, Inc., Dept. C&E, 223 N. California Ave., Chicago, Ill., or use the Request Card that is bound in at page 18 of this issue. Circle No. 94.

Build Forms and Pour, Re-Use on Next Floor!

*Ellis Recommends Movable Tower Sections
For Big Savings of Forming Time and Labor*



Another Example of
Ellis Products
In Action



CONCRETE CONSTRUCTION ON TWO DORMITORIES AT TEXAS AIR FORCE BASE HANDLED WITH ONE SERIES OF TOWERS

Portable Tower Sections, enough to form a complete floor at one time, were used by the Warner Construction Co., of San Angelo, Texas, to expedite construction of two three-story buildings at the Goodfellow Air Force Base. The contractor and the F. M. Equipment Co. of Dallas, jointly developed this idea. Each 1,950-lb. section consists of decking, joists, purlins, and Ellis Adjustable Shores. They made two pours per floor. For re-use, each section is lowered to clear overhead obstructions, casters are put on the four outside shores and it is rolled to the edge where a fork-lift truck pulls it out from the structure and lifts it to the next level. Edges of the forms are re-worked occasionally between uses. Building one set of forms enabled superintendent Pat Koontz to use them six times on this job.

INVESTIGATE TODAY!

For complete details on this money-saving application of Ellis Methods and Products, mail in this coupon, or — better yet — write to Ellis giving specifications on your next job and they will suggest adaptations, free of obligation to you.

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Send me, without obligation, complete
details on the use of movable tower
sections in forming.

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For more facts, use coupon, or Request Card at page 18 and circle No. 309

125

Product Parade



Here, the Model CP-10 Airplaco concrete placer is shown utilizing a 105-cfm air compressor to place a 1-2-3½ concrete mix with 1-inch rock, through a length of 4-inch-ID steel concrete-placement tubing. This particular job required a 25-foot vertical lift, and a total pipe length of 150 feet. Additional vertical lift and greater lengths of tubing can be used simply by increasing the air supply.

Concrete placers jet mix through tubing by air

Two new Airplaco concrete placers, designed to force the mix through steel placement tubing by means of compressed air, are announced by the Air Placement Equipment Co.

The new units are the Model CP-10 which handles 10 cubic feet of concrete per charge, and Model CP-15, handling 15 cubic feet per charge. Either 4-inch-ID or 6-inch-ID concrete-placement tubing is available for use with both models. Tubing size to be used depends upon size of rock to be handled, production rate required, and the amount of air available.

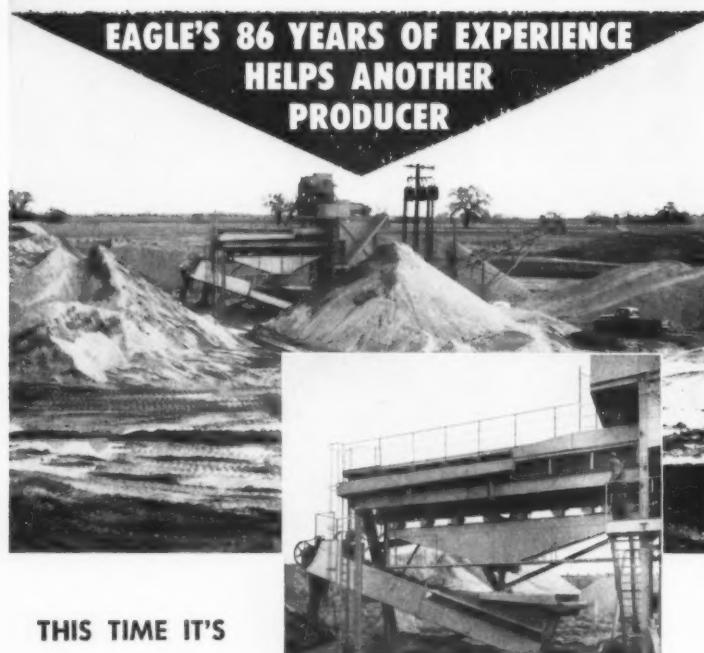
These concrete placers will place concrete with 2 to 6-inch slump; they will also place the more harsh aggregates, such as Haydite, which normally cannot be pumped with standard concrete-pumping equip-

ment, according to the company. Depending upon the slump of the concrete, the length of placement tubing, vertical lift, and air supply, production rates reportedly will range from 8 to 20 cubic yards per hour.

Other important features of these concrete placers include complete portability to and from the job site, by means of a spring-loaded undercarriage with pneumatic tires; on-the-job maneuverability due to light weight and pneumatic tire flotation; and special couplings on each section of concrete-placement tubing to assure speed and flexibility in setup.

For further information write to the Air Placement Equipment Co., Dept. C&E, 1009 W. 24th St., Kansas City, Mo., or use the Request Card that is bound in at page 18. Circle No. 90.

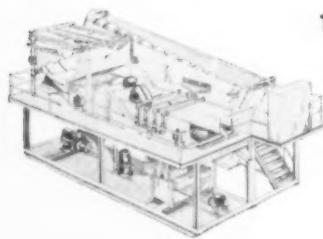
For more data on any item, circle indicated number on card at page 18.



THIS TIME IT'S

Munn and Perkins MODESTO, CALIF.

An Eagle Aggregate Washing-Classifying-Dehydrating Plant Section, consisting of a 32' Water Scalping-Classifying Tank and a 44" dia. x 32' Single Screw Fine Material Unit enables Munn & Perkins to meet California State Highway specifications. This is accomplished in part by removal of a surplus of $-\frac{1}{8} \times +\frac{1}{16}$ material, from the sand grading. Unwanted material is gathered by the multi-cell collecting-blending flume and routed to the pit area. Wanted meshes are discharged into the Screw Unit for final washing and dehydrating. Tom Croft, plant manager, reports economical, trouble-free operation. Output averages 800-tons daily. If you have an aggregate processing problem you can benefit from Eagle experience, facilities and service. Send for Catalog 58.



The Eagle Heavy Media Separation Plant

Available for producers confronted with materials that cannot be separated by ordinary methods. This very practical "sink-float" plant employs the highly effective O.C.C. Separatory Vessel. Plant is made in four, readily transported, sections, easily assembled at new pit site.

EAGLE IRON WORKS

159 HELCOMB AVE., DES MOINES, IOWA

For more facts, use Request Card at page 18 and circle No. 310



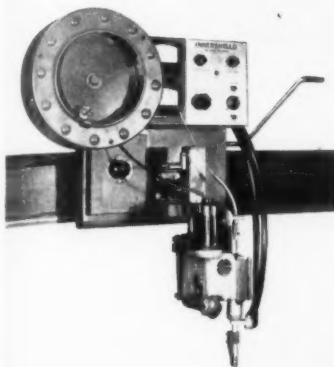
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ETNYRE
"Black-Topper"
BITUMINOUS DISTRIBUTORS



For more facts, use Request Card at page 18 and circle No. 311

CONTRACTORS AND ENGINEERS



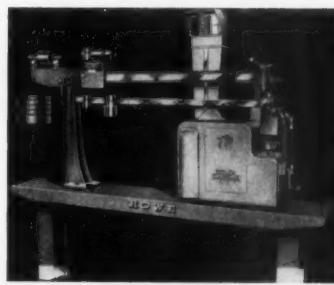
Weight indicator permits readings from a distance

A new improved version of the Weightograph projection-type weight indicator is announced by the Howe Scale Co.

Designed to project the actual weight on a large illuminated screen in a nonprotruding, eye-level periscope housing, the Weightograph makes it possible to read accurately weight indications many feet away from the scale.

The Weightograph mechanism contains no gears, friction disks, racks, pinions, or weighing springs. Several models are available, including a double-reading model with weight indication projected on both sides.

For further information write to the Howe Scale Co., Dept. C&E, 2951 Scale Ave., Rutland, Vt., or use the Request Card that is bound in at page 18. Circle No. 69.



New welding process is high-speed, automatic

A new automatic high-speed welding process, and equipment, available from The Lincoln Electric Co., reportedly arc-welds steel at speeds ranging up to 300 inches per minute.

The process, called Innershield, uses a new type of flux-containing, coiled-wire electrode that produces a vapor shielding for an open arc, in contrast to the completely flux-covered arc of submerged arc welding and the open arc gaseous shielding of coated manual electrodes.

Since the process eliminates granular flux, a further advantage is the absence of abrasive flux material to cause wear and operating difficulties in fixtures or welding machinery, the manufacturer states.

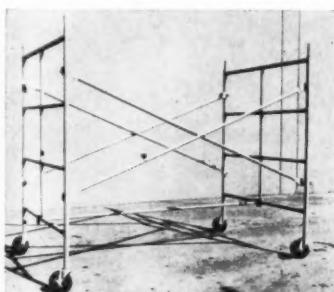
The process will make welds ranging from lap welds in 16-gage material to butt welds in $\frac{1}{2}$ -inch plate. Typical applications include small-diameter circular or roundabout welds, automotive parts, and pressure tanks.

For further information write to The Lincoln Electric Co., Dept. C&E, 22801 St. Clair Ave., Cleveland 17, Ohio, or use the Request Card at page 18. Circle No. 139.

Rolling scaffold offered as general-utility unit

A lightweight tubular-steel rolling scaffold is offered by the Superior Scaffold Co.

Designed for general utility, the unit consists of 4×4 -foot or 4×5 -foot box-type frames, and standard Auto-



Lock tubular cross braces and horizontals. Also included is a specifically designed set of 6-inch casters, with brakes, to facilitate movement.

For further information write to the Superior Scaffold Co., Dept. C&E, 5624 Bankfield Ave., Culver City, Calif., or use the Request Card that is bound in at page 18. Circle No. 24.



LIMA Type 44 Pullshovel, owned by S. A. Reubel & Co., trenching near Cincinnati, Ohio.

"An extremely rugged machine...plenty of reach for deep trenching" — says S. A. Reubel & Co.

Back in September, 1956, S. A. Reubel & Co., of Cincinnati, Ohio, bought a LIMA Type 44 Pullshovel to do the heavy digging on its pipelaying jobs. The company tells us: "We have found the LIMA 44 an extremely rugged machine, with the power and weight to do a fine, fast job. It has plenty of reach for deep trenching and is very easy to handle. We are glad to have it working on our team." Contractors like S. A. Reubel & Co. appreciate the speed, reliability and extra capacity of LIMAS. Here are some of the reasons these machines offer more: All gears, smaller parts and shafts that are subjected to extra wear are flame or induction hardened for

longer life; long, wide crawlers for maximum stability; anti-friction bearings are used at all critical bearing points; large diameter big-capacity drums and sheaves prolong cable life; propel, swing gears, and power take-off enclosed in a sealed oil bath; torque converter (optional).

Find out more about the complete line of LIMA shovels, cranes, draglines and pullshovels with wagon, truck or crawler-mountings. They are designed and built to give you the power and stamina that pay off on every job. See your nearby LIMA distributor, or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

LIMA Construction Equipment Division, Lima, Ohio
BALDWIN · LIMA · HAMILTON

Shovels • Cranes • Draglines • Pullshovels • Roadpackers • Crushing, Screening and Washing Equipment

For more facts, use Request Card at page 18 and circle No. 312





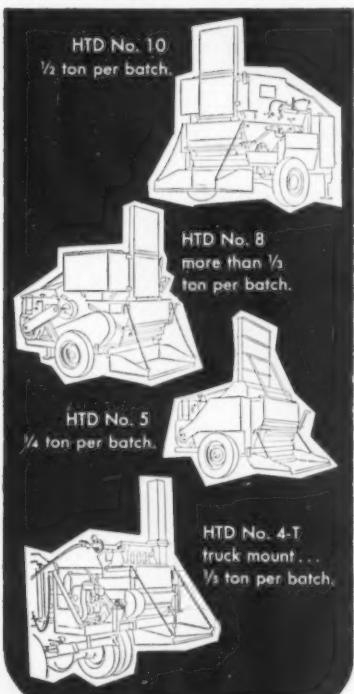
Trailers for almost every conceivable industrial use—office, bunkhouse, kitchen, mess hall, laboratory, parts storage, and many others—are available from the Industrial Division of the Spartan Aircraft Co. Although the firm manufactures sizes to fit any specific requirements, a basic line is offered in lengths ranging from 28 to 50 feet on the standard 8-foot widths, with a 10-foot-wide series in the 45-foot length. The units feature all-aluminum, all-riveted construction, and all models ride on tandem axles with brakes at each wheel. For further information about these trailers, write to the Industrial Division, **Spartan Aircraft Co.**, Dept. C&E, 1919 N. Sheridan Road, Tulsa, Okla., or use the Request Card at page 18. Circle No. 134.

New soil-testing machine is portable, hand-driven



FOR LOW-COST
HOT OR COLD
PAVING OR PATCHING
IN ANY SEASON

**McConnaughay
ASPHALT MIXERS**



For details and specifications
write...

**McCONNAUGHAY
MIXERS, INC.**
LAFAYETTE, INDIANA

National distributors: Asphalt Equipment Co.
3314 Cherry Lane, Fort Wayne, Indiana

For more facts, circle No. 313

The availability in the United States of a portable hand-driven machine for performing unconfined compression tests on soils is announced by Soiltest, Inc. Developed in Great Britain for the execution of tests on soils of a predominantly clayey nature, the machine includes a recording system that provides a permanent record of all tests performed.

In operating the machine, the specimen to be tested is loaded axially by means of a calibrated spring attachment. The lower end of the spring is compressed by means of a lead screw driven by a pair of spiral bevel gears. An arm extending from the upper spring platform slides horizontally in a 4:1 ratio of amplification of the compression of the specimen. The vertical movement indicated by the recording pencil on the chart is a measure of the load being applied to the specimen.

The machine and its accessories are mounted in a sturdy wooden case, and weigh only 25 pounds.

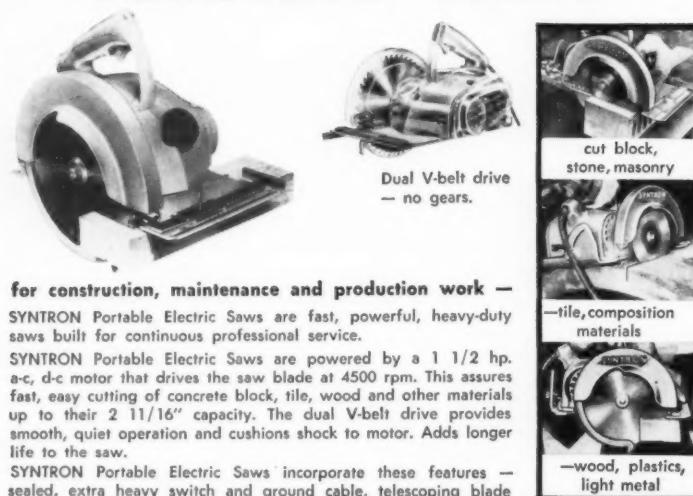
For further information write to



A manually operated machine for performing unconfined compression tests on soils, this British import includes a recording system that provides a permanent record of all tests performed. The entire unit weighs only 25 pounds.

Soiltest, Inc., Dept. C&E, 4711 W. North Ave., Chicago 39, Ill., or use the Request Card at page 18. Circle No. 37.

**SYNTRON Heavy Duty-Portable
ELECTRIC SAWS**



for construction, maintenance and production work —
SYNTRON Portable Electric Saws are fast, powerful, heavy-duty saws built for continuous professional service.

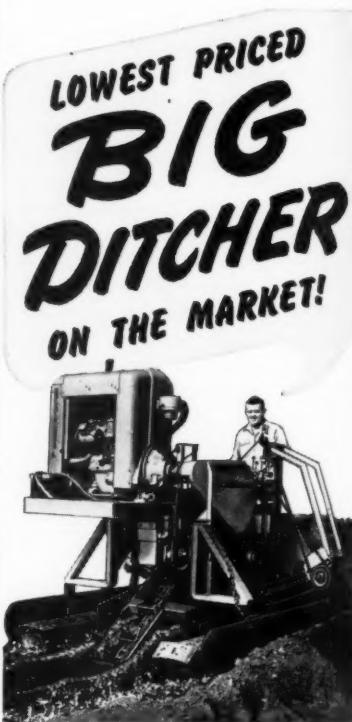
SYNTRON Portable Electric Saws are powered by a 1 1/2 hp. a-c, d-c motor that drives the saw blade at 4500 rpm. This assures fast, easy cutting of concrete block, tile, wood and other materials up to their 2 11/16" capacity. The dual V-belt drive provides smooth, quiet operation and cushion shock to motor. Adds longer life to the saw.

SYNTRON Portable Electric Saws incorporate these features — sealed, extra heavy switch and ground cable, telescoping blade guard, adjustable depth and angle of cut, also available water spray attachment for dustless masonry cutting.

For additional information write to: Other SYNTRON Tools — Gasoline Hammers & Drills, Concrete Vibrators, Compactors & Floats, Electric Hammers & Drills, Mass Concrete Vibrators

SYNTRON COMPANY
22 Lexington Ave., Homer City, Pa.

For more facts, use Request Card at page 18 and circle No. 314



**VERMEER 524T
Pow-R-Ditcher**

Acclaimed by contractors everywhere, the 524T delivers more ditch at a much lower dollar cost. This rugged, quality-built unit is especially designed for wide foundation footings, gas, water and sewage lines. Digs 8" to 24" wide at speeds up to 15' per minute. Handles most ditch-digging jobs at a fraction of the cost of larger, more expensive trenching and ditching machines.

**Model 4T
Pow-R-Ditcher**

Has same size moving parts as the 524T but digs smaller 6" to 14" ditch. Ideal for the light construction field.



Write For Literature and Low
Prices on the Complete
Vermeer Pow-R-Ditcher Line

Another smaller Pow-R-Ditcher also available. Visit your Vermeer dealer for a demonstration or write for all the facts. Check the Pow-R-Ditcher before you buy. You'll like the quality AND THE PRICE!

**VERMEER
MANUFACTURING CO.**
1437 W. WASHINGTON • PELLA, IOWA

For more facts, circle No. 315
CONTRACTORS AND ENGINEERS



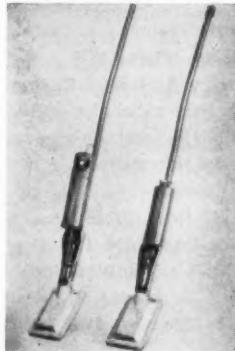
A Motorola engineer demonstrates tuning of the final amplifier in the 250-watt transmitter of the new 450 to 460-mc base station for mobile 2-way radio systems.

Base station ups range in the UHF mobile band

A new radio base station announced by Motorola incorporates a 250-watt transmitter and a highly sensitive receiver to extend the range of two-way mobile radio systems operating in the 450 to 460-mc band.

The high-power transmitter of the new equipment, used with a high gain antenna, provides effective radiated power of more than two kilowatts. According to Motorola, this will normally double the range and so quadruple the area covered by the low-power transmitters presently available for use in this band.

For further information write to Motorola, Inc., Communications & Industrial Electronics Division, Dept. C&E, 4501 W. Augusta Blvd., Chicago 51, Ill., or use the Request Card at page 18. Circle No. 142.



Asphalt smoothing iron self-heats in 10 minutes

A self-heating smoothing iron for finishing and patching asphalt paving is announced by Calweld, Inc.

Designated Surfa-Slick, the iron is said to heat to operating temperature in 10 minutes and maintain that heat all day. Lightweight and easy to carry, the unit is available in both a gasoline-fired type and an LP-gas-fired model.

For further information write to Calweld, Inc., Dept. C&E, 7222 E. Slauson Ave., Los Angeles 22, Calif., or use the Request Card at page 18. Circle No. 57.

New side-boom attachment for front-end loader

The Superior Equipment Co. announces a versatile side-boom attachment for the Hough Model HO Payloader.

The 10-foot hydraulically controlled boom provides a maximum lifting capacity of 5½ tons, and is easily adjusted in 2-foot increments, telescoping from 10 to 16 feet. A hydraulically extended boom is also available.

According to the manufacturer, positive precision control of the boom is available at all times through a special lifting device, which eliminates danger to the operator from boom cables when the boom is lowered into a working position.

For further information write to the Superior Equipment Co., Dept. C&E, Box 30, Bucyrus, Ohio, or use the Request Card at page 18. Circle No. 25.



2 sure ways to reduce COMPACTION COSTS




THE BARCO RAMMER

Put Barco Rammers on the job and watch the results. One of the biggest advantages they offer is ability to handle work in minimum time.

HIGH DEGREE COMPACTION—In test after test, Barco Rammers have demonstrated their ability to deliver 95% to 97.5% compaction (modified Proctor Method) — EASILY! EFFICIENTLY! ECONOMICALLY!

FOR TOUGH JOBS—The Barco Rammer is especially useful for compacting fill in restricted areas close to walls, culverts, and abutments — in trenches, ditches. ONLY the Barco Rammer can produce specified high degree compaction on lifts up to 20 inches.

ONE MAN OPERATION—On area tamping, one man can average 20 to 30 cubic yards of fill per hour.

On trench backfill, using lifts up to 24", the rate for 18" trench is 360 to 600 feet per hour.



Ask for Catalog 621

BARCO MANUFACTURING CO.
BARCO RAMMER
for High Degree Soil Compaction



Ask for Catalog 630



518F Hough St., Barrington, Ill.
BARCO VIBRA-TAMP
for Granular Fill and Bituminous Surfacing

For more facts, use Request Card at page 18 and circle No. 316



This FWD Model C6-557 ready-mix concrete truck, for use with mixer capacities up to 8 cubic yards, features ten forward, two reverse speeds. Shown with a new 7-cubic-yard transit mixer with truck-engine power takeoff drive, the truck is also offered with tilt-cab styling. A 6-cubic-yard-capacity unit, the Model C6-407, is also available.

Two new concrete trucks adapt to any make mixer

Two new six-wheel-drive ready-mix concrete trucks—Model C6-407, with a separate engine-type 6-cubic-yard mixer, and Model C6-557, featuring a 7-cubic-yard transit mixer with truck-engine power-takeoff drive—are announced by the Four Wheel Drive Auto Co. Both units are adaptable to any make of mixer and mixer drive system.

The C6-407 and C6-557, equipped with 6-cylinder engine, 5-speed transmission, and 2-speed transfer case, offer 10 forward and two reverse speeds. Designed with heavier FWD axle, tandem suspension, and frame, the C6-557 handles mixer capacities up to 8 cubic yards, compared with the 6-cubic-yard capacity of the C6-407.

Both models are available with either conventional cabs or FWD's new tilt-cab styling.

For further information write to the Four Wheel Drive Auto Co., Dept. C&E, Clintonville, Wis., or use the Request Card at page 18. Circle No. 115.

Truck mixer is offered in 17 different models

The 1958 Pacemaker truck mixer is announced by the Challenge Mfg. Co.

Among the unit's many features is a relocated water tank said to give the operator full vision to the rear of the mixer. In addition, the operator has complete operating control of the mixer from either the rear or truck cab: one lever starts, stops, and reverses the drum, changes gear range, and regulates the speed of the engine. An automatic wash-down system helps keep the discharge assembly clean.

The new truck mixer is available in 17 different models. Front-mounted separate engine units are made in 4, 5, 5½, 6, 6½, 7, and 8½-cubic-yard sizes. Rear-mounted side engine models are offered in 5½, 6, 6½, and 7-cubic-yard sizes. Engine-takeoff models have capacities of 5½, 6, 6½, 7, and 8½ cubic yards, and the power-takeoff model has a 4-cubic-yard capacity.

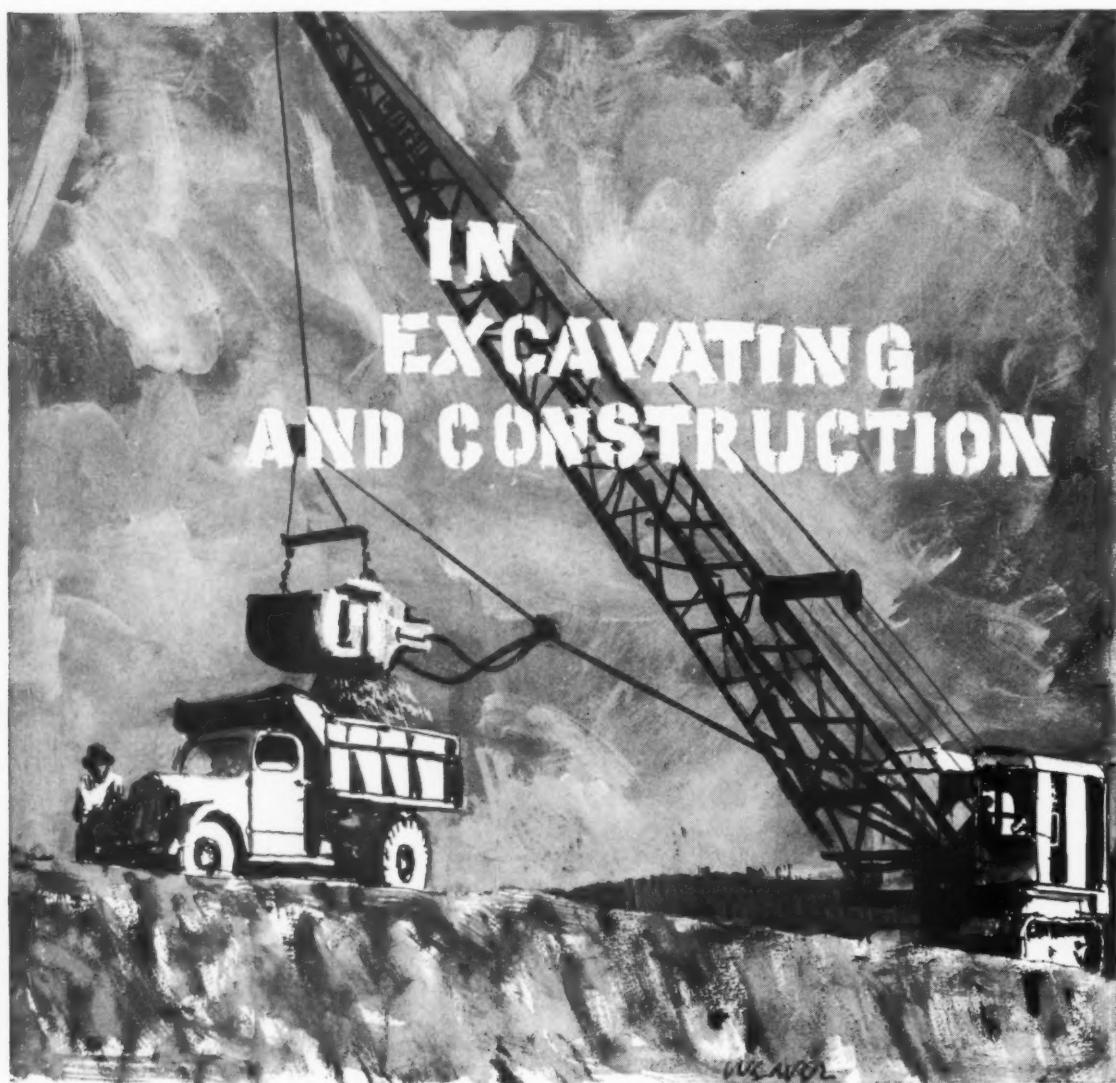
For further information write to the Challenge Mfg. Co., Dept. C&E, 7400 E. Bandini Blvd., Los Angeles 22, Calif., or use the Request Card at page 18. Circle No. 43.

Truck-mixer loading plant holds 200 tons

A new Uni-Rect truck-mixer loading plant, designed for maximum capacity and portability, is available from the Blaw-Knox Co.'s Construction Equipment Division.

Designated Model 200-222, the plant's features reportedly include factory-assembled units that provide ample storage and fast erection, pre-assembled and tested batching equipment, and bin compartmentation that makes possible a wide and readily available variety of mix designs.

The seven-part, 200-ton-capacity plant has a 3-cubic-yard automatic batching unit, four 37-ton self-clean-

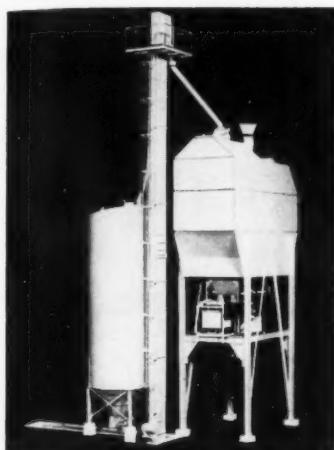


NOTHING TRANSMITS POWER WITH THE ENDURANCE OF ROEBLING ROYAL BLUE WIRE ROPE. On a dollar-for-dollar basis, nothing approaches its stay-on-the-job tenacity. Nor gives you the advantages of flexibility, shock and abrasion resistance. Royal Blue is the strongest wire rope you've ever used. For details see your local Roebling Distributor or write Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.



For more facts, use Request Card at page 18 and circle No. 317

ROEBLING 
Branch Offices in Principal Cities
Subsidiary of The Colorado Fuel and Iron Corporation



This 200-ton-capacity Uni-Rect truck mixer loading plant is available with a choice of manual, power-assist, or fully automatic batching systems. Its bin compartmentation is designed to make possible a wide and readily available variety of mix designs.

ing aggregate compartments, two 150-barrel watertight cement compartments, and two 300-barrel auxiliary cement compartments. Its cement elevator is rated up to 75 tph.

A choice of manual, power-assist, or fully automatic batching systems is offered. The auto-positioning aggregate turnhead is push-button controlled, and the flop gates are air operated.

For further information write to the Blaw-Knox Co., Construction Equipment Division, Dept. C&E, 40 Charleston Ave., Mattoon, Ill., or use the Request Card at page 18. Circle No. 6.

New general-service pump has 1,500-gpm capacity

A single-stage, general water service pump with a double suction, enclosed-type impeller, is announced by the Allis-Chalmers Mfg. Co.

Designated Type KS, the pump is designed with a large-diameter shaft to reduce deflection and stress, and has "O"-ring shaft sleeve seals said to provide a positive seal without shaft distortion. Labyrinth-type bearing seals serve the dual purpose of sealing in bearing lubricant and preventing water from entering the bearings.

Other design features include an improved hydraulic suction passage which reduces local cavitation tendencies, and "O"-ring casing seals to establish a positive seal against water returning to the suction side of the impeller.

The improved outboard bearing design permits removal of bearings without removing the top half of the casing.

The Type KS pump is available in sizes up to 6 inches, and offers capacities to 1,500 gpm and heads to 500 feet.

For further information write to the Allis-Chalmers Mfg. Co., Dept. C&E, Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 17.

For more data on any item, circle indicated number on card at page 18.

Hydraulic winch operates smoothly at all speeds

A new fully-hydraulic winch, designed for use with the Teale Versa-Lift truck-mounted crane, but available separately, is announced by Teale & Co.

Powered by twin, heavy-duty, two-way hydraulic cylinders that transmit power directly to the drum drive-shaft, the unit is said to operate easily under full load all day long. According to the manufacturer, line speed can be varied, with smooth precision, from 45 fpm (with a 15-gpm pump) down to less than 1 fpm. It develops 6,000 pounds of line-pull on a bare

drum, with positive power on the line both in and outgoing, and can be driven with a pump as small as 5 gpm without affecting winch power. If a hydraulic line begins leaking badly, or breaks, the winch drum stops automatically and holds the load in position.

The 600-pound unit is 18 inches wide, 17 inches high, and 24 inches long.

For further information write to Teale & Co., Dept. C&E, Box 308, Omaha, Nebr., or use the Request Card at Page 18. Circle No. 26.



Bucyrus-Erie 71-B Marks Trend On Biggest Idaho Road Job

The use of a Bucyrus-Erie 71-B shovel indicates a new trend toward bigger equipment in northwestern highway work. This rugged machine was chosen by the prime contractors, F. H. Slate Co. and E. C. Hall Co. of Portland, Ore., to load out rock, topsoil, and gravel in mountainous terrain 10 miles east of Coeur d'Alene, Idaho.

The project is the biggest roadbuilding job ever let by the Idaho Department of highways. Running through Fourth of July Canyon, this 7.2-mile segment of the Interstate System replaces a narrow, winding road long cursed by irate drivers. It's the first four-lane divided highway ever attempted in such mountainous country. Some 1,700,000 yards of excavation are involved.

In digging this tough material, the contractors profited from the 71-B's dependability. They saw it maintain a good pace in areas where other machines wouldn't have stood up. Full air control, not just air assist, on all operating clutches and steering and digging brakes provided full-feel control . . . reduced operator fatigue.

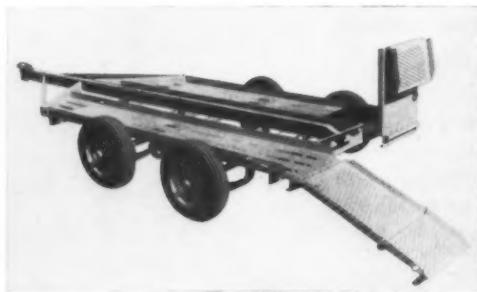
In addition to the 71-B, Bucyrus-Erie Company offers a complete line of excavators from $\frac{1}{2}$ to 4 cubic yards. All machines are convertible to crane, clamshell, or dragline front ends. Machines up to $2\frac{1}{2}$ yards are also convertible in the field to hoe front end. Get all the facts on these machines from your nearby Bucyrus-Erie distributor today.

467E58

A Familiar Sign . . . **BUCYRUS**
ERIE **. . . at Scenes of Progress**

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

For more facts, use Request Card at page 18 and circle No. 318



The Haulette tractor transport is designed to be hauled to the job site by a light pickup truck. The unit is available in lengths to 20 feet, with bed lengths to 15 feet 3½ inches. ►

New tractor transport hauled by light pickup

A trailer for transporting tractors, backhoes, front-end loaders, and other like equipment, and designed to be hauled by a light pickup truck, is offered by the Haulette Division of the Fayette Mfg. Co.

Designated Haulette, the unit is available in over-all lengths from 14 to 20 feet, with bed lengths ranging from 11 feet to 15 feet 3½ inches. Loading widths are from 70 to 95 inches.

Retractable steel ramps are an im-

portant feature in all models.

Larger models have four wheels with 8.00×14.5, 12-ply tires, and electric brakes.

The Haulette is offered with a choice of ball hitch or lunette eyeless pintle for attaching to the hauling unit.

For further information write to the Haulette Division, Fayette Mfg. Co., Dept. C&E, Morenci, Mich., or use the Request Card at page 18. Circle No. 8.



Illinois Toll Highway



Chicago-Calumet Skyway



Chicago-Calumet Skyway



Illinois Toll Highway



Illinois Toll Highway



Illinois Toll Highway



Chicago-Calumet Skyway



Chicago-Calumet Skyway



Chicago-Calumet Skyway

SUPERIOR ACCESSORIES For Bridge Abutments, Approaches, Grade Separations, Interchanges, and Decks

Various types of Superior Accessories provided money-saving forming in the bridges and related jobs pictured above. With the increasingly keen competition for this type of work, contractors have discovered that the efficient forming methods of SUPERIOR Accessories offer all-important bidding advantages. Some of these accessories are shown below.

Photo Credits—Illinois Toll Highway Comm.; Kenny Const. Co.; J. M. Corbett Co.

Whenever you are planning form work . . . Superior's experienced engineering service is available to prepare form layouts, estimates and quotations. This comprehensive service is offered without charge.

Write for NEW 6-PAGE BULLETIN describing the Superior items for use in form work in the general field of bridges, both structural steel and prestressed concrete.

between each throw and at both ends of the crankshaft, and full pressure lubrication. Other features include an oil bath air cleaner, oil-cooled pistons, and a 22:1 compression ratio.

For further information write to R. H. Sheppard Co., Inc., Dept. C&E, 47 Middle St., Hanover, Pa., or use the Request Card at page 18. Circle No. 77.

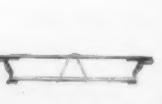
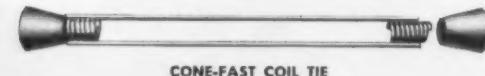
New 100-watt mobile radio has transistorized power

A 100-watt two-way mobile radio with a fully-transistorized power supply has been added to the Motorola T-Power line.

On this unit, four transistors are used to replace both the vibrator and the dynamotor. Transistors are characterized by their exceptionally long trouble-free life, the company points out.

T-Power radiophones can be operated from any 12-volt primary power source with either positive or negative ground. Models are available with a conventional noise squelch or with the company's Dual Squelch private-line circuit which eliminates all co-channel nuisance messages as well as other interference.

For further information write to Motorola Communications & Electronics, Inc., Dept. T, Dept. C&E, 4501 W. Augusta Blvd., Chicago 51, Ill., or use the Request Card at page 18. Circle No. 63.

	HEAVY-DUTY SCREED SUPPORTS		SCREED CHAIRS		PLATE HANGER FRAME		PRESCON HANGER
	CONE-FAST COIL TIE		NUT WASHER ASSEMBLY				
SUPERIOR Concrete Accessories, Inc.				NEW YORK OFFICE 1775 Broadway N.Y. 19, N.Y.	PACIFIC COAST PLANT 2100 Williams St. San Leandro, Calif.		
9301 King Street, Franklin Park, Illinois							

For more facts, use Request Card at page 18 and circle No. 319



New vibratory compactor covers a 13-foot-wide swath

A self-propelled vibratory compactor, for use in compacting gravel sub-bases, crushed aggregate bases, soil-cement, and macadam bases, is offered by the Construction Equipment Division of the Baldwin-Lima-Hamilton Corp.

Designated Roadpacker, the unit is said to cover a 13-foot swath in each pass. The end vibrators are folded for highway transportation, at speeds up to 30 mph, under the machine's own power.

Optional power plants for this machine include two gasoline models, International U-264-6 and Waukesha 195-GKU, and two diesels, Waukesha 195-DLCU and GM 3-71 (3031).

According to the manufacturer, the vibratory method permits the compaction of thicker lifts, with less time required.

For further information write to the Construction Equipment Division, Baldwin-Lima-Hamilton Corp., Dept. C&E, Lima, Ohio, or use the Request Card at page 18. Circle No. 112.

Front-end power takeoff for transit-mixer line

A 2-speed right-angle gear drive for front-end power takeoff is a feature of the Worthington Corp.'s 1958 line of concrete truck mixers.

The new design, included on both the Fleetmaster and the Fleetbuilder models, incorporates a pair of multiple-disk clutches running in an oil bath for 2-speed operation. This permits the driver to shift the drum from mixing speed to agitating speed or neutral position without shifting gears.

A 5:1 gear ratio permits drum speeds from 10 rpm for mixing in high gear down to 1.78 rpm for agitating in low gear. The control lever for changing drum speed on the new mixers is extended into the cab to permit changing while the truck is in motion.

Whether stationary or de-clutched, the front-end power takeoff permits drum motion at all times. Drum rotation is stopped by shifting cab control to the neutral position or utilizing the remote control on the transmission.

For further information write to the Worthington Corp., Concrete Machinery Division, Dept. C&E, S. Second St., Plainfield, N. J., or use the Request Card at page 18. Circle No. 30.

Utility dozer tooth is quickly mounted

A utility dozer tooth that can be mounted on the dozer blade in a few minutes by means of a simple, positive clamp is announced by Young Iron Works.

The unit, said to be especially useful for removing roots and stumps, is available in five sizes.

For further information write to Young Iron Works, 2959 First Ave., S., Seattle 4, Wash., or use the Request Card at page 18. Circle No. 76.

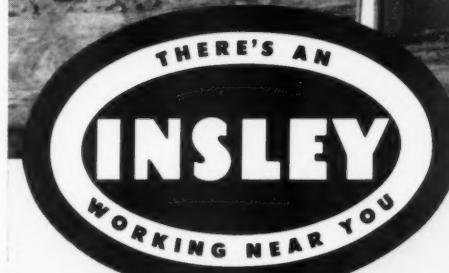


what's behind the boom in bridge building?

Behind this boom and many other booms that are helping expand and modernize America's highways, you'll find an Insley crane. What's behind Insley's popularity?

Contractors have answered this by saying that an Insley has more of what they want . . . more in performance, more in dependability and more in reserve for those tough, unpredictable jobs.

Before you buy, find out more about Insley's popularity. See your Insley distributor. See first hand why, "There's An Insley Working Near You."



INSLEY TYPE WB CRANE
Owned by Boyd & Goforth, Inc.,
Charlotte, N. C.

INSLEY MANUFACTURING CORPORATION
GENERAL OFFICES—INDIANAPOLIS 6, IND.
WEST COAST DIVISION—LOS ANGELES 54, CALIF.
THE MAXI CORPORATION (Subsidiary) LOS ANGELES 54, CALIF.



Product Parade

For more facts on these products, circle the indicated number on the Request Card at page 18.

IT's NEW --- The Campbell Sliding Cab



for the models HU, HH, and HO
"Payloaders"!!!

This sturdy, modern design offers features long desired by "PAYLOADER" operators, among them—Sliding top, ball bearing mounted on steel channel—Rubber seals to insure weather tightness—Permanently mounted access ladder—Rear view mirror—Tinted safety glass windshield and skylight.

Investigate this completely new design in "Payloader" Cabs by calling your "Payloader" distributor, or contact

CAMPBELL DETACHABLE CAB CO.
WAUCONDA, ILLINOIS

For more facts, use Request Card at page 18 and circle No. 321

Shown mounted for pusher service with a heavy-duty track-type tractor, the Shunk-Winget spring cushion push block features powerful coil springs designed to absorb destructive contact shocks.



Push block for tractors absorbs contact shocks

A push block designed to minimize shocks and stresses between scrapers and pusher tractors is announced by the Shunk Mfg. Co.

Designated Shunk-Winget spring cushion push block, this new tractor accessory incorporates powerful coil springs that absorb destructive contact shocks.

On the largest model of the push block, a tractive force of 58,000 pounds reportedly is required to compress the springs the three inches between stops.

All models are constructed of heavy-welded steel reinforced at points of stress. Wear plates are replaceable, and the block's face is $\frac{1}{2}$ -inch alloy steel backed by $\frac{3}{8}$ -inch steel plate.

The units are available for crawler tractors in the 150 to 250-hp class.

For further information write to the Shunk Mfg. Co., Dept. C&E, Bucyrus, Ohio, or use the Request Card at page 18. Circle No. 9.

Device for mobile radios assures privacy on line

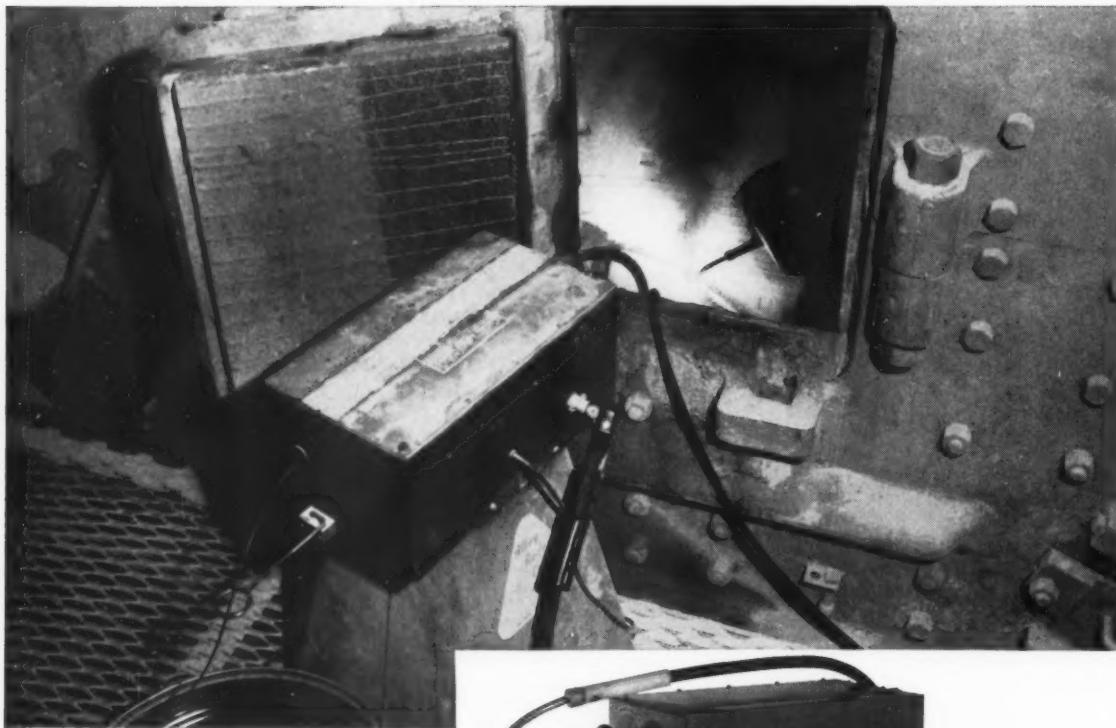
Quiet Channel, a selective device which assures private two-way radio communications by blocking out all unwanted messages when the channel in use is being shared with other systems, is announced by the Radio Corp. of America.

Completely automatic, the device keeps a radio receiver silent until another operator in the same radio system depresses his press-to-talk switch to transmit a message. This action sends out a constant low-frequency tone, not heard through the speaker, which triggers the Quiet Channel device on the receiver and turns on the receiver speaker. Upon completion of transmission, the speaker is turned off, automatically.

Designed for use on all frequency bands, Quiet Channel—a compact unit measuring $5\frac{1}{4} \times 2\frac{3}{4} \times 4$ inches—can be installed on mobile and station radio receivers, with installations made at the factory or in the field.

For further information write to the Radio Corp. of America, Dept. C&E, Front & Cooper Sts., Camden 2, N. J., or use the Request Card at page 18. Circle No. 35.

"Saved 50% on Crusher Maintenance with WEAR-O-MATIC wire feed unit and wires."



"We've had our Wear-O-Matic Wire Feed Unit for three months and we'll cut hard surfacing maintenance time on our 5360 and 4350 Cedar Rapids crushers by at least 50%. For the first time it looks as though our weldor will be able to do the right kind of a job on these crushers with enough time left over to do an adequate job on the shovels and other equipment."

"In addition to a savings in time, we find that Wear-O-Matic wire deposits wear longer than the deposits of stick electrodes we have used. Also, our weldor likes to work with your machine and Payoffpak wires . . . it's the easiest to set up that he has ever used."

Maintenance Superintendent
Lincoln Stone Inc., Thomasville, Penna.

The customer has told only part of our story . . . may we add—The Wear-O-Matic wire feed unit sells for only \$279.00 f.o.b. York, Pa. or El Segundo, Calif. For complete details write requesting Bulletin HS-123: Alloy Rods Company, P. O. Box 1828, York, Penna.



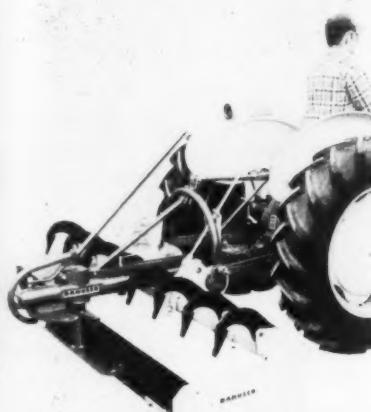
U. S. Patent applied for.

alloy Rods Company

YORK, PENNSYLVANIA • EL SEGUNDO, CALIFORNIA



For more facts, use Request Card at page 18 and circle No. 322



A multipurpose unit, the Danuser scarifier-scraper can be bolted to the firm's 6 or 8-foot blade in a few minutes. A spring-loaded control handle, accessible to the tractor seat, lifts the scarifier teeth when not in use.

New scarifier-scraper is versatile attachment

The Danuser Machine Co. announces a scarifier-scraper blade attachment that rips, scarifies, scrapes, grades, levels, backfills, and terraces any kind of soil, including clay, packed top soil, or hardpan.

According to the manufacturer, this multipurpose attachment is easily bolted to the 6 or 8-foot Danuser blade in a few minutes.

In operation, one man works the tractor's hydraulic controls to raise, lower, or hold the unit in the desired working position. A spring-loaded control handle, which is accessible to the tractor seat, lifts the scarifier teeth when not in use. Each heat-treated steel tooth has replaceable, wear-resistant points.

A pivot bracket is available for all Danuser blades not now equipped to handle the attachment.

For further information write to the Danuser Machine Co., Dept. C&E, 500 E. Third St., Fulton, Mo., or use the card at page 18. Circle No. 118.

**On the job
PORTABLE
POWER
cuts work
time...cuts
costs!**



**Katolight Portable
POWER PLANTS**

With instant dependable electric power on the job, work speeds up... costs go down. Katolight Portable Power Plants give your crews "plug-in" electricity anywhere, whenever it is wanted... power to operate all types of electrical tools or for steady, bright flood lighting. Standard sizes and models for every portable, standard or continuous use from 350 watts to 125 KW. Special Units up to 500 KVA to meet requirements.

WRITE TODAY
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New...
LIGHTWEIGHT
PORTABLE
POWER PLANT
FOLDER

KATOLIGHT CORPORATION
Box 891-8 Mankato, Minnesota

For more facts, circle No. 323

MAY, 1958

Offer new accessories for concrete forming

The Dayton Sure-Grip and Shore Co. has added nut washer and handle washer form ties to its line of concrete-forming accessories.

The nut washer assembly consists of two $\frac{3}{4}$ -inch outside stud rods and two nut washers. The stud rods have 10 inches of thread to permit the use of lumber of various dimensions. The inside end of each stud rod has a 3-inch taper to allow easy removal from the concrete, and is threaded inside for a $\frac{1}{2}$ -inch tie rod.

Where specifications call for watertight walls and no exposed metal, the company recommends its cone nut assembly. The steel cone nuts, with

inside threaded rod, act as both spreader and tie. Cones are removed after stripping, and the small hole is grouted. Steel cone nuts are available for $\frac{1}{8}$, $\frac{1}{2}$, $\frac{3}{8}$, and $\frac{3}{4}$ -inch threaded tie rods.

Steel hex nuts for $\frac{1}{2}$, $\frac{3}{8}$, and $\frac{3}{4}$ -inch threaded tie rods are available for heavier jobs where no metal can be exposed and nuts can be left in the concrete.

For further information write to the Dayton Sure-Grip and Shore Co., Dept. C&E, 302 Kercher St., Miamisburg, Ohio, or use the Request Card that is bound in at page 18 of this issue. Circle No. 88.

How to get the Most Capacity from your Clamshell...



Clamshell and dragline operators report that when they install Yaun Buckets on their rigs, production often climbs as much as 20%. What's the reason? Having the right size and type bucket for each specific material is part of the answer... and there's a Yaun Bucket to match this specification. Yaun Buckets are designed for faster digging, cleaner dumping. They're conservatively rated. There's less downtime because all critical wearing points are engineered with an extra margin of strength and durability. All-welded construction gives strength without dead-weight. There's a big difference you can measure in yards of material moved per hour—and in lower costs, too!

Wouldn't this sound good to you? Talk over your bucket requirements with your Yaun Dealer. He will help you analyze your dragline and materials requirements, and recommend the size and type bucket you need.

Yaun Manufacturing Co., Baton Rouge, Louisiana.

BACKED BY A NATION-WIDE DISTRIBUTOR ORGANIZATION

There are more than 150 Yaun Dealers located all over the U.S.A.—all ready to make early delivery on your Yaun Buckets—and stock an ample supply of parts.

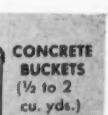
YAUN



DRAGLINE
BUCKETS
($\frac{3}{4}$ to 40
cu. yds.)



CLAMSHELL
BUCKETS
($\frac{1}{2}$ to 15
cu. yds.)



CONCRETE
BUCKETS
($\frac{1}{2}$ to 2
cu. yds.)

THE BUCKET THAT'S BUILT TO LAST!

For more facts, use Request Card at page 18 and circle No. 324

Product Parade

One-step photocopier slashes operating time

A one-step office photocopier, said to cut by two-thirds the time usually required for reproducing an original document, is offered by the American Photocopy Equipment Co.

Designated Uni-matic Auto-Stat, the unit is designed to require only a single insertion of the original copy and photocopy paper. After the paper has been exposed to the light source, the original is returned while the photocopy paper continues through the machine to be developed, and a ready-to-use copy automatically emerges from the machine.

The new unit has a horizontal color control dial on the front, called the

Sweepline dial, that permits rapid selection of the finer settings for copying from any color paper or ink. The feed-in slot located below the control dial will accept originals up to 11 inches wide.

Weighing approximately 34 pounds, the machine is 7 inches high, 13½ inches deep, and 21 inches long. Push-button controlled, it operates on ordinary electric current.

For further information write to the American Photocopy Equipment Co., Dept. C&E, 1920 W. Peterson Ave., Chicago 26, Ill., or use the Request Card that is bound in at page 18. Circle No. 124.

PlyClips used to stiffen panel edges on 40,000 square feet of roof decking in a Phoenix, Arizona, warehouse entirely eliminate blocking. The clips are available in sizes for $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, and $1\frac{1}{16}$ -inch plywood thicknesses.



Device firms panel edges in plywood roof decks

A new device for stiffening panel edges in a plywood roof deck is offered by the Douglas Fir Plywood Association.

Designated PlyClips, the device is an H-shaped aluminum alloy clip designed to slip over plywood panel edges at midspan between rafters or purlins. According to the manufacturer, it stiffens the joint between two adjacent panels by transferring a concentrated load from one panel edge to the next.

PlyClips are said to be a fully adequate substitute for 2x4 blocking at panel edges whenever it is required, with the single exception of a plywood roof deck engineered as a horizontal

diaphragm to transmit maximum allowable shear.

The clips are more than 1 inch long and $\frac{3}{4}$ inch wide, with webs corresponding to the plywood thickness, and flanges tapered and slightly rounded at the edges to ease placement on the panel edge. They are available in sizes suitable for $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ and $1\frac{1}{16}$ -inch plywood thicknesses, and are packaged for easy handling on the job site.

For further information write to the Plywood Research Foundation, Douglas Fir Plywood Association, Dept. C&E, 1119 A St., Tacoma 2, Wash., or use the Request Card at page 18. Circle No. 126.

New rock drill eliminates dust hoods, vacuum lines

The Vacujet dustless stoper, a rock drill that sucks all dust and cuttings down through the drill, then discharges them under pressure through a long hose to a container, is offered by Ingersoll-Rand.

Vacuum is developed by an ejector jet incorporated into the backhead of the drill. This vacuum draws the cuttings down through the drill steel and the drill. When the dust and cut-

tings reach the jet, they are caught in the jet air stream and pushed under pressure through a hose to a tank or bag 25 feet or more away from the drill.

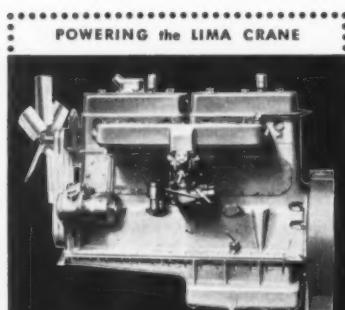
The line used for carrying away the dust and cuttings is ordinary 1-inch air hose.

The drill steels have a tapered bit end and shank, eliminating the need for forging and heat treating. Re-

high pouring **POWER** at low cost

WAUKESHA

Concrete is moving here. And a Waukesha-powered Lima crane with a 190' boom is moving it. Using a 2-yd. concrete bucket, between one and two full floors a day are being poured, depending on truck delivery. The co-operative housing project is in Brooklyn's Sheephead Bay area. Costaldo Construction Corp., Bronx, New York, own the unit. Its overhead valve engine—Waukesha Super-Duty WAK—is built to deliver greater power per cubic inch displacement. And it is rugged in every detail, oil pan to head. Renewable wet-type sleeve cylinders, and other "complete rebuildability" features give easy, economical maintenance. Get Bulletin 1554.



Waukesha WAK Gasoline—six cyl., 6½ x 6½" bore & stroke, 1197 cu. in. displ. (Also in normal or turbocharged Diesel models.)

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

380

NEW YORK

TULSA

LOS ANGELES

For more facts, use Request Card at page 18 and circle No. 326

JERSEY SPREADERS



... World's fastest accurate paving Spreaders!

Lay a smooth, even spread at the rate of up to 1000 tons per hour—and do it easily and economically, fast and accurately without delay to hauling units. Two models available to meet all requirements.

Write now for complete information and illustrated literature.



REG. TRADE MARK

TRACTOR SPREADER COMPANY

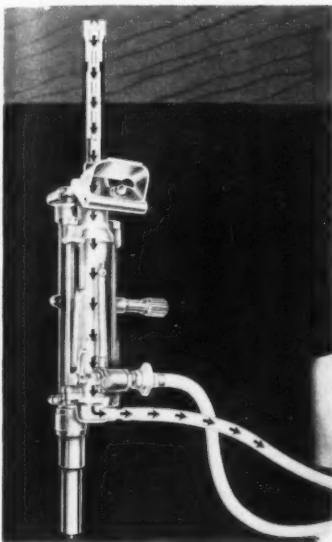
MANUFACTURERS OF THE JERSEY SPREADER

HASBROUCK HEIGHTS, NEW JERSEY

38-29

For more facts, use Request Card at page 18 and circle No. 327

CONTRACTORS AND ENGINEERS

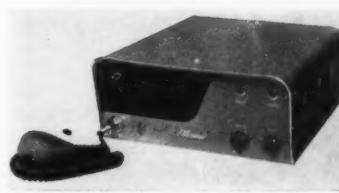


Mobile radiotelephone works off 12-v battery

A new FM mobile radiotelephone is announced by the Kaar Engineering Corp.

Designated Model TR500, the unit reportedly will provide reliable communication between vehicles and a fixed point within a 10-mile radius of the fixed station. Ranges of up to 200 miles can be obtained between vehicles and from fixed points to vehicles when a repeater station is used, the range depending upon the effective elevation of the repeater station and the character of the terrain, the company claims.

The new radiotelephone is available as a complete single package unit, suitable for mounting under the dash of a vehicle or on any flat surface, or as a system containing the transmitter, receiver, and power supply in one unit suitable for mounting in the trunk of an automobile, with a separate control head and speaker for mounting under the dash. In either case, the unit may be operated directly from a 12-volt battery or 117-volt ac house current, and may be used interchangeably as a mobile unit or base station.



The single-package TR500 radiotelephone weighs only 26 pounds, and is 14½ inches long, 13 inches wide, and 5¾ inches high.

For further information write to the Kaar Engineering Corp., Dept. C&E, 2995 Middlefield Road, Palo Alto, Calif., or use the Request Card at page 18. Circle No. 32.

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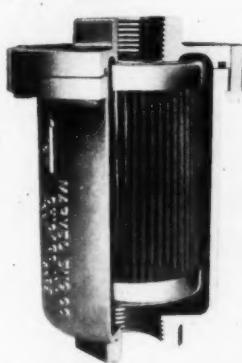
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Hydraulic oil filter handles up to 25 gpm

A filter for in-line installation to handle hydraulic oil in capacities from 10 to 25 gpm is available from the Marvel Engineering Co.

The unit has an over-all length of 6½ inches, head diameter of 4½



inches, case diameter of 3½ inches, and 1-inch NPTF openings at both ends.

The filter medium is made of Monel wire cloth, and is available in mesh sizes from 30 to 100. According to the manufacturer, the cartridge is easily removed for thorough cleaning, and there are no throwaway parts to buy or replace.

For further information write to the Marvel Engineering Co., Dept. C&E, 7227 N. Hamlin Ave., Chicago 45, Ill., or use the Request Card at page 18. Circle No. 131.

For more facts on these products, circle the indicated number on the Request Card at page 18.

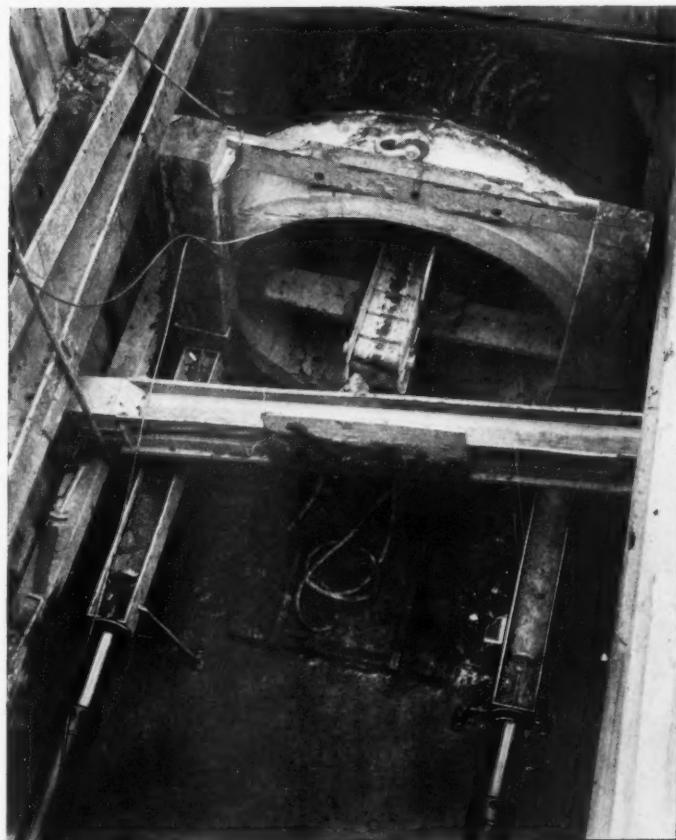
MUSCLES under the mainline!

Rodgers Hydraulic Jacks

push three 88 foot tiles under railroad without disrupting traffic

Two 200 Ton Rodgers Hydraulic Jacks were selected by W. J. Irwin & Sons, Inc., Tonawanda, N. Y. for driving three sewer pipes of 96" I. D. reinforced concrete tile 88' under the mainline of the New York Central Railroad. Part of a 2½ million dollar sewer contract on the Tonawanda West Side Drainage Project, the "push pipe" method was preferred because it permitted unrestricted use of the rail right-of-way overhead.

TIME: 34 DAYS—Actual jacking time consumed 34 days based on three-eight hour shifts a day. Each sewer took eleven 8-foot tile sections. The *First Line* required 14 days; the *Second Line* 11 days and the *Third* only 9 days.



Steel rails cradle tile sections as twin Rodgers Jacking Cylinders press against the wooden jacking frame. Heavy grease on outside of tile cuts down friction—for easier sliding.

Rear of excavation pit showing Hydraulic Jack against abutment wall. At this stage the ram is extended approximately 1/3 of the 48" ram travel.

ADVANTAGES OF HYDRAULIC JACKING—This job was handled at low cost and was unique due to the short time required for completion and the fact that rail service overhead continued uninterrupted throughout the tunneling project below. Entirely different from conventional tunneling, the "push pipe" method also provides greater safety to workers from cave-ins since they work inside the tile that is being driven.



JACKING PROCEDURE—A service pit 28' deep by 22' wide by 40' long was excavated to house the jacking equipment. A pair of 75 lb. steel rails placed on the concrete pit floor cradled the tile sections and acted as a guide for the jacking operation. Type of soil encountered in all three pipes was a mixture of heavy yellow and blue clay.

EQUIPMENT USED—Two 200 Ton Rodgers Hydraulic Jacks with 48" ram travel were powered by a Rodgers Model D2 electric driven hydraulic pump located at the top of the excavation pit. A valve panel located at the bottom of the pit permitted accurate control of the jacking operation.

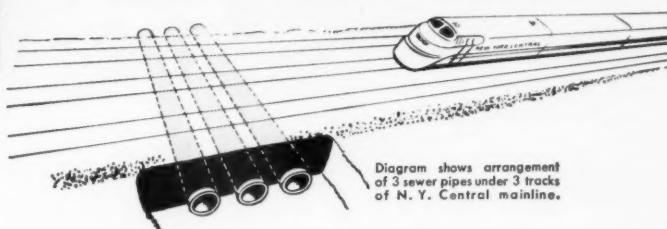


Diagram shows arrangement of 3 sewer pipes under 3 tracks of N. Y. Central mainline.

If you'd like more details about this job, write for free copy of Bulletin 331.

Rodgers Hydraulic Inc.

7415 Walker St. • Minneapolis 16, Minnesota





The Ottawa truck-mounted backhoe, designed for Chevrolet 3/4-ton or larger units, digs 12½ feet deep in any position of its 190-degree arc. A quick on-and-off feature leaves the truck free for other work when not needed for digging.

Truck-mounted backhoe digs 12½ feet deep

A truck-mounted backhoe for Chevrolet 3/4-ton trucks and larger is announced by the Ottawa Steel Division of the Young Spring & Wire Corp.

When a trench has been completed in one area the backhoe is hydraulically shifted up and over the rear axle of the truck, and is driven at regular road speeds to the next job site, where it is again readied for operation in seconds, according to the manufacturer.

The new Ottawa truck-mounted backhoe digs 12½ feet deep in any

position of its continuous 190-degree swing. The machine reportedly can dig or load at any angle up to 95 degrees right or left from the center line of the tractor. Only two levers control all actions of the boom and bucket.

Another feature is an ejector bucket which automatically forces all wet, sticky material from the bucket during the dumping cycle. Ejector buckets are available in 14, 18, and 24-inch widths. Standard trench buckets come in 18, 24, and 30-inch widths.

A quick on-and-off feature of the backhoe leaves the truck free for other work when not needed for digging, the company reports.

For further information write to the Ottawa Steel Division, Young Spring & Wire Corp., Dept. C&E, 435 S. Main, Ottawa, Kans., or use the Request Card that is bound in at page 18. Circle No. 2.

HIGHWAY SKID-MOUNTED EARTH-BORING MACHINES

... dig the hole set the pole



Spotter-Base for hydraulic positioning in an 80° arc, in-and-out motion of 22".



Available on full Swing-Base for curb-side digging or Spotter-Base for easy positioning. Write to Highway for complete information.

10 plus features

1. Designed and built rugged and sturdy for tough daily use.
2. Powerfully made to dig holes up to 36" in diameter and 10 feet deep in any soil conditions.
3. Can be quickly mounted on any type or make of truck having sufficient capacity to carry its weight.
4. Can be equipped with integral winch and derrick with a rated capacity of 4500 pounds.
5. Can be quickly adjusted to dig at many angles regardless of position of truck.
6. Auger bar and pole derrick are raised from traveling to working position by power.
7. A complete earth-boring machine, integrally assembled with engine, clutch and transmission.
8. A new adjustable clutch with side ports in the clutch case affording easy access for adjustment.
9. New winch takes power directly from transmission. Utilizes all speeds of transmission.
10. Optional hydraulic controls for easier, faster operation.

SAVE

\$150 to
\$400 on New
Extra Heavy Duty
Finest Quality
**ATLAS
TRANSITS**

MODEL T-30 only \$595 outperforms transits selling at \$995 and up. Field tested and accepted by engineers, contractors, builders. Minimum focus at 6½'. Magnification is 30x. Readings down to 10 seconds.

MODEL T-26 only \$395 equal to any costing \$650 to \$750. Mag. 26x. Readings to 20 sec.

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ALL ATLAS Instruments sold only on money-back guarantee. Complete with tripod and accessories. Non-rated D&B firms \$25 deposit, balance C.O.D.

COMPLETE, MODERN REPAIR FACILITIES:

send to:

ATLAS INSTRUMENT CO.
611 Pearl St. Dept. CEN58 Sioux City, Iowa

For more facts, circle No. 330

CONTRACTORS AND ENGINEERS



UTILITY
DIVISION

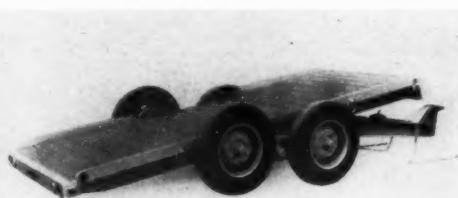
HIGHWAY TRAILER COMPANY

HEADQUARTERS: EDGERTON, WISCONSIN

Manufacturers of: Public Utility Bodies • Earth-Boring Machines • Pole and Cable Reel Trailers • Winches • Power Take-offs • Service Accessories • Commercial Trailers • Trailered Tanks and Dry Bulk Trailers
SALES AND SERVICE IN PRINCIPAL CITIES

For more facts, use Request Card at page 18 and circle No. 329

Designed to haul the Cat No. 955 Traxcavator and other track-type equipment, this 12-ton-capacity Hyster tilt-top trailer features a 12-degree loading angle.



a road clearance of 9 inches.

The unit includes many accessories as standard equipment.

Four 8.25x20, 12-ply tires are mounted on the unit's Budd disk single wheels.

For further information write to the Martin Trailer Division, Hyster Co., Dept. C&E, South and Thomas Ave., Kewanee, Ill., or use the Request Card at page 18. Circle No. 140.

Transmission-axle combo eliminates engine clutch

The Transmission & Gear Co. announces a small 2-speed, forward and reverse transmission-axle combination unit equipped with hydraulic forward and reverse clutches running in oil.

The new unit, designated Model RT-629-C, eliminates the necessity of an engine clutch in fork-lifts, loaders, and similar material-handling equipment. It is available with or without a Westinghouse torque converter.

Gear ratios of the RT-629-C are 10:1 in high speeds, and 24:1 in low speeds. It has a capacity of 30 horsepower input at 2,000 rpm, and is available with thread widths of 35, 40, 48, and 62 inches.

For further information write to the Transmission & Gear Co., Dept. C&E, 10421 Haggerty Ave., Dearborn, Mich., or use the Request Card at page 18. Circle No. 121.

FOUNDATION CONSTRUCTION

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DRILLED AND UNDERREAMED

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SPECIAL DRILLING PROBLEMS

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Wire or phone for a quotation
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For more facts, circle No. 331

MAY, 1958

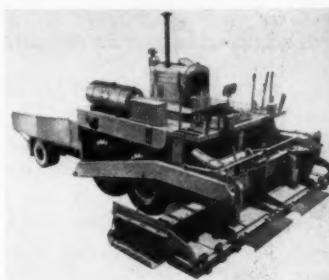
New bituminous paver is highly automatic

A highly automatic 10-ton-capacity bituminous paver finisher is announced by the Blaw-Knox Co.'s Construction Equipment Division.

Designated Express Paver, the machine reportedly will lay hot or cold asphaltic material 8 to 16 feet wide, and up to 10 inches deep, at a travel speed of as high as 7 mph.

According to the company, all the advantages of the rubber-tire PF-90 paver have been retained in the new machine, with the principal design changes centering on the screed, augers, and tamper.

For further information write to the Construction Equipment Divi-



The Blaw-Knox Express Paver

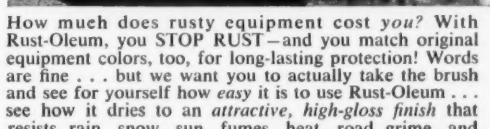
sion, Blaw-Knox Co., Dept. C&E, 40 Charleston Ave., Mattoon, Ill., or use the Request Card at page 18. Circle No. 81.

RUST-OLEUM[®] STOPS RUST!

and matches ORIGINAL EQUIPMENT



Distinctive as your
own fingerprint.
Accept no
substitute.



How much does rusty equipment cost you? With Rust-Oleum, you STOP RUST—and you match original equipment colors, too, for long-lasting protection! Words are fine . . . but we want you to actually take the brush and see for yourself how easy it is to use Rust-Oleum . . . see how it dries to an attractive, high-gloss finish that resists rain, snow, sun, fumes, heat, road grime, and blowing dust and sand. And the same formula can be applied by hot or cold spray. Just check off the color you desire on the coupon and attach it to your business letterhead for a FREE TEST SAMPLE. No cost or obligation.

Your Rust-Oleum Industrial Distributor maintains complete stocks for immediate delivery.

ATTACH COUPON TO YOUR BUSINESS LETTERHEAD FOR FREE TEST SAMPLE

CHECK COLOR TO MATCH YOUR EQUIPMENT

Please send me a FREE TEST SAMPLE in the color checked:

<input type="checkbox"/> 769 Damp-Proof	<input type="checkbox"/> CATERPILLAR	<input type="checkbox"/> OLIVER	<input type="checkbox"/> MINNEAPOLIS-MOLINE
<input type="checkbox"/> Red Primer	<input type="checkbox"/> H-4 Yellow	<input type="checkbox"/> H-12 Green	<input type="checkbox"/> H-16 New Prairie
<input type="checkbox"/> H-50 Primer	<input type="checkbox"/> H-13 Red	<input type="checkbox"/> H-13 Red	<input type="checkbox"/> Gold
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<input type="checkbox"/> J. I. CASE	<input type="checkbox"/> H-11 Red	<input type="checkbox"/> H-11 Red	<input type="checkbox"/> H-7 Gray
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<input type="checkbox"/> H-28 Desert Sunset	<input type="checkbox"/> H-18 Yellow	<input type="checkbox"/> H-18 Yellow	<input type="checkbox"/> H-8 Blue
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	<input type="checkbox"/> H-23 Straw Yellow	<input type="checkbox"/> H-23 Straw Yellow	

For more facts, use coupon, or Request Card at page 18 and circle No. 332

Truck crane features remote-control operation

A remote-controlled truck crane designed for mounting on any truck, with no special tools required for installation, is announced by the Anthony Co.

The remote-control system is operated by heavy-duty double solenoids, permitting the operator to steady the load at the same time that he is operating the controls.

The crane lifts 5,000 pounds, and fits in an 18-inch mounting space. The boom swings 280 degrees. The

high pivot point of the boom over the truck bed provides maximum clearance for heavy loads, as well as ample area for rotation of the boom over the cab of the truck.

The hydraulic pump that operates the crane is driven by power takeoff on the truck's transmission.

For further information write to the Anthony Co., Dept. C&E, 1750 Baker St., Streator, Ill., or use the Request Card at page 18. Circle No. 16.



This Anthony remote-controlled truck crane enables a single operator to control the load, as well as operate the crane. According to the manufacturer, the operator can swing the boom with such precision that it can approach an object and stop within the space of a silver dollar.

Black & Decker TOOL OWNERS AGREE
Let the men who
make 'em-fix 'em!



Swift Service says:
"Local Black & Decker Factory Branch Service means longer life, better performance for your B&D Tool!"

Free Tool Inspection Standard B&D Guarantee

Look under Tools-Electric in Yellow Pages or write us for address of nearest Factory Service Branch. THE BLACK & DECKER MFG. CO., Dept. S3805, Towson 4, Md.

Black & Decker
QUALITY ELECTRIC TOOLS

For more facts, circle No. 333

Re-Power With FUNK Modular Units

FUNK TORQUE CONVERTERS



Extend the life of your engines, prevent stalls, eliminate damaging shock loads—re-power with FUNK Torque Converters. Compact units, fit SAE housings. FUNK Standard Flange System easily adapts other FUNK units for your power needs.

FUNK GEAR REDUCTIONS



Small, popular-make high speed engines equipped with low-cost FUNK Gear Reductions develop the same power output at substantial savings over large expensive slow speed engines. Eliminate expensive and dangerous V-belt and chain drives. Exclusive FUNK Straddle Mounted Pinion. Proven Performance.

Consult Your Dealer or Write

FUNK
MFG. CO.

P.O. BOX 577-B
COFFEYVILLE
KANSAS

For more facts, circle No. 334

ALL NEW!
GOOD ROADS
"ODELL"
SPREADER



...for asphalt and aggregate spreads up to 8-inch depths

Operated by only two men, contractors report savings up to 50% on average jobs with the "Odell". Spreads hot or cold-mix asphalt, gravel, coarse slag or stone, limestone, cinders, and other base material (up to 4" in diameter) to 8" in depth. Adjustable for spreads up to 10 feet.

Accurate spread depth is controlled by the exclusive "floating" strike-off bar with new crown adjustment, mounted on runners independent of the roller and hopper.

Can be hitched to any size or model truck in seconds. For complete details see your Good Roads distributor or write:

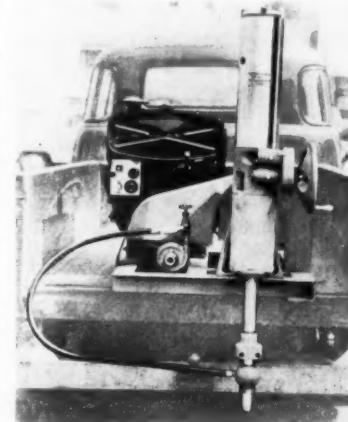


GOOD ROADS MACHINERY CORP.
MINERVA, OHIO

For more facts, circle No. 335

Diamond core driller is completely portable

A gasoline-powered diamond core drilling machine, said to drill holes up to 14 inches in diameter through reinforced concrete at the rate of 4 inches per minute, is offered by Molco Drilling Machines, Inc.



Designated the Mole Model V, the machine is completely portable, being mounted on a truck or weighted vehicle for use on highways and runways to obtain accurate cores or for cutting tie-down holes.

The Mole is equipped with a 15-hp engine, a 12-volt generator, a starter, clutch, and governor, all mounted on a steel base. The unit also includes a water pump and water swivel.

A 2-speed drill bit feed mechanism cuts drilling time, and special thin-wall diamond core bits reportedly make for economical operation, as only a small amount of material is removed.

For further information write to Molco Drilling Machines Inc., Dept. C&E, 1100 20th St. N. W., Washington, D. C., or use the Request Card at page 18. Circle No. 132.

Keep Cool, mister! with



ARCTIC BOY
portable water coolers



- Rugged Construction ... good everywhere men work!
- Galvanized inset, hot dipped after forming for flaw-free finish!
- Large top opening, easy to ice, fill and clean.
- Send for complete information and booklet "Care and Use of Your Cooler." Write Dept. C-24.

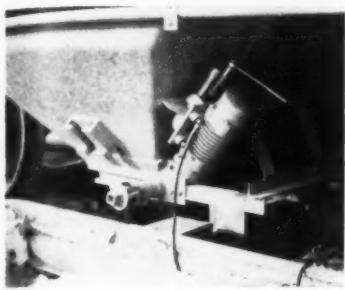


THE SCHLUETER MFG. CO. • ST. LOUIS 7, MO.

For more facts, circle No. 336

An electric vibrator designed to speed the unloading of dry cement, sand, and other types of powdered or granular material is announced by Engineered Equipment, Inc. Designated Vibramat, the unit utilizes the rotary eccentric.

Vibramat can be attached to the unloading hopper of railroad freight



cars or other transporting equipment. It sets up a concentrated vibration, alleviating the need for sledge-hammer pounding to loosen jammed or packed materials.

When used on concrete forms, the Vibramat causes the wet concrete to settle smoothly into the form without hand rodding or pounding, the manufacturer reports.

The unit is available with either a rigid or swinging base, and with a 1/6, 1/3, or 1-hp motor.

Rigid base models are designed for concrete-pipe forms and other applications where vibration in all directions is desired. The swinging base models are used on vibrating tables and other applications requiring a concentrated reciprocal vibration.

For further information write to Engineered Equipment, Inc., Dept. C&E, 1001 Linden Ave., Waterloo, Iowa, or use the Request Card at page 18. Circle No. 100.

Introduce new submerged arc-welding machine

A new type of mechanized welding machine for the submerged arc process is announced by The Lincoln Electric Co.

Designated Lincolnweld ML-3, the unit provides automatic wire feed, flux flow, and travel speed, but per-



mits manual guiding of the welding arc. It feeds a continuous wire electrode from a coil to a compact handheld gun, which is held against the joint along which it is propelled at a preset speed by a small motor. When 600 amps are used, speeds up to 70 inches per minute reportedly are possible with the ML-3. It can be used on materials from 10-gage up.

The unit operates from any variable voltage, motor-generator set or rectifier with capacity to supply 400 to 600 amps dc. A separate 115-volt ac source is required for the control circuits.

For further information write to The Lincoln Electric Co., Dept. C&E, 22801 St. Clair Ave., Cleveland, Ohio, or use the Request Card at page 18. Circle No. 50.

The side-dumping bucket attachment is now available on the Cat Traxcavator No. 977. The new bucket eliminates a great deal of turning by allowing the loading and carrying vehicles to operate in parallel directions.

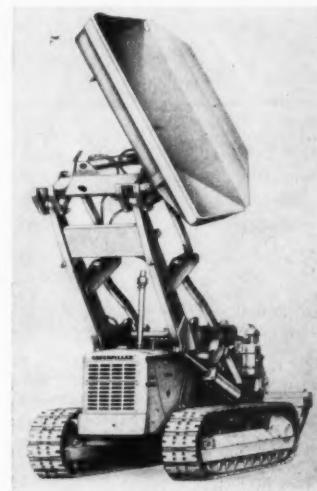
Side-dump bucket offered for heavy-duty excavator

The Caterpillar Tractor Co. announces the availability of a side-dump bucket for its largest model Traxcavator, the No. 977.

The 2 1/2-cubic-yard attachment is said to be especially useful for stockpile loading, trench or basement backfilling, excavation of broken or loose material, snow and ice removal, and loading in confined areas.

The benefits of in-line loading are now afforded to the No. 977, including the ability to load without the continual turning demanded of standard tractor shovels.

For further information write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card that is bound in at page 18. Circle No. 67.



Light-weight Beth-Cu-Loy Pipe is so easy to install

Here you see a 14-ft length of corrugated galvanized Beth-Cu-Loy pipe being moved to location by only two men. Made of 16-ga sheet steel, this section weighs but 214 lb; larger sections in heavier gages can be handled by the simplest kinds of lifting devices.

The advantages of such light weight make possible quick and economical drainage installations. First of all, light-weight pipe is cheaper to ship. Smaller diameters can be nested inside larger ones, and it is entirely possible to load more than a quarter-mile of pipe on one truck!

At the job-site, Beth-Cu-Loy pipe's long lengths reduce the number of field joints. Pipe-laying can keep right up with the trenching. And it's an easy operation, again because of the pipe's light weight. Large crews of men and costly hoisting equipment are not needed for installation.

Pipe made of Beth-Cu-Loy is strong, too, because Beth-Cu-Loy is steel. A uniform coating of Prime Western zinc provides corrosion-resistance that protects the pipe for many years. You can generally figure on a culvert of this type outlasting the original project for which it was designed.

Beth-Cu-Loy sheets for drainage pipe and culverts are made by Bethlehem to AASHO specifications. Any of our fabricators will be glad to give you further information about Beth-Cu-Loy sheets and how they can be used to meet your drainage engineering needs. For the name of a fabricator near you, just get in touch with us.

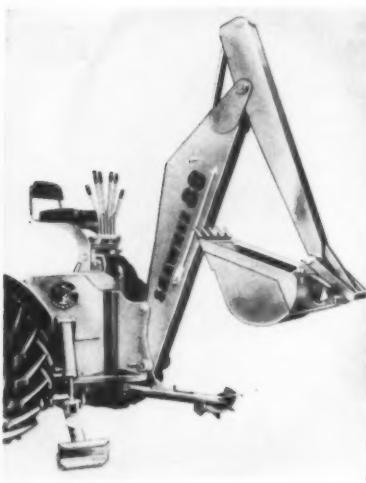
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation



BETHLEHEM STEEL

For more facts, use Request Card at page 18 and circle No. 337



Designed to afford lifetime automatic compensation for any wear in the swing mechanism, the Shawnee Model 88 backhoe attachment has a 9-foot 9-inch loading height, a digging depth of 12 feet, and a reach of 16 feet 6 inches. In addition, its new linkage design enables one bucket to handle all types of jobs.

New backhoe attachment cuts play in swing unit

A new backhoe attachment for light utility tractors is available from the Shawnee Mfg. Co.

Designated Model 88, the unit features a new linkage design that enables one bucket to handle all types of jobs, including straight-down spot digging, and truck loading. Buckets are available in widths from 16 to 36 inches, and can be changed quickly and without the use of tools, according to the manufacturer.

The machine's double-cylinder swing incorporates a heavy-duty chain and sprocket. The cylinders are designed to afford lifetime auto-

matic compensation for any wear in the swing mechanism. As a result, the manufacturer states, there is never any play in the mechanism, and it never requires adjusting.

The Shawnee 88 has a 180-degree uninterrupted swing.

The new unit has a loading height of 9 feet 9 inches, a digging depth of 12 feet, and a reach of 16 feet 6 inches.

For further information write to the Shawnee Mfg. Co., Dept. C&E, 1947 N. Topeka Ave., Topeka, Kans., or use the Request Card at page 18, Circle No. 119.

New platform trailer rugged but lightweight

A new platform trailer, designed to combine lightweight steel with strong construction, is offered by Hobbs Trailers.

Designated Model FCBPM 3000, the new model features two fabricated 18-inch-deep I-beam center beams that run the full length of the trailer. These center beams extend through and are flush with the top of the floor, taking much of the direct pressure of the load. High-tensile steel cross members and outriggers are set in the center beams' webs to allow more welded area for joining component parts in the frame. They give direct support of the tongue-and-groove fir flooring.

This 8-foot-wide trailer is offered in standard lengths of 35 and 40 feet, with rated payload capacities of 50,000 and 65,000 pounds, respectively.

The unit is available with square nose or 16-inch radius nose. The square nose has stake pockets across



Geared by FULLER...

New Diamond T's for Material Service Corporation

Hauling heavy loads into sandy, muddy construction sites is daily routine for Material Service Corporation. This well-known Chicago area supplier of construction materials and concrete products knows what this work requires of trucks: *heavy-duty components throughout*.

That's why Material Service specified Fuller 5-A-65 Transmissions in the recent purchase of Diamond T Model 830-32M Trucks.

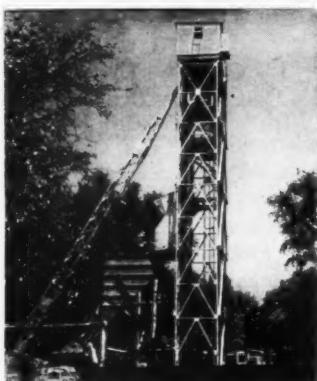
Fuller Transmissions are designed for long and satisfactory service . . . for heavy loads, steep grades and the stress of constant shifting. Specify Fuller Transmissions wherever the "going's tough" . . . to deliver maximum horsepower through the *right* gear ratios . . . to speed work cycles at lowest cost! Get the facts from your truck manufacturer or truck dealer . . . or write Fuller Manufacturing Company for details.

Material Service Corporation's new Diamond T 830-32M's feature Fuller 5-A-65 Transmissions and Eaton-Hendrickson Tandems. Concrete pipe being loaded is typical of loads carried by this well-known construction material supplier.

FULLER

 **TRANSMISSIONS**

FULLER MANUFACTURING CO. Transmission Division • Kalamazoo, Mich.



MAYO KOEPE HOISTS

offer lower initial costs, greater day-to-day economy for tunnels and small mines.

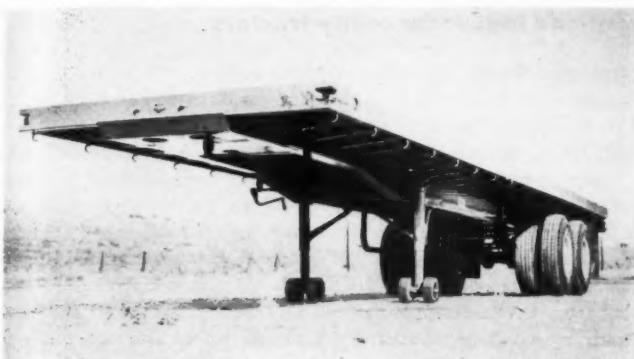
FREE Bulletin 20-A illustrates and describes installations of Mayo Koepe Hoists, Head Frames, Sinking Frames and other shaft equipment. Send for your copy today.

MAYO
TUNNEL AND MINE EQUIPMENT
LANCASTER, PENNA.

For more facts, circle No. 339

CONTRACTORS AND ENGINEERS

For more facts on these products, circle the indicated number on the Request Card at page 18.



A lightweight, ruggedly constructed unit, this Hobbs fabricated center-beam platform trailer is offered in lengths of 35 and 40 feet, with rated payload capacities up to 65,000 pounds. The unit is available in square and round-nose models, with a choice of three stake-pocket styles.

the front for better booming of payloads, the manufacturer states.

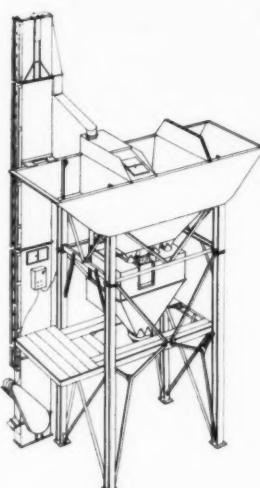
For further information write to Hobbs Trailers, Dept. C&E, 609-33 N. Main St., Fort Worth, Texas, or use the Request Card at page 18. Circle No. 127.

Portable transit-mix plant has many features

The Roustabout, a portable transit-mix plant, is available from the C. S. Johnson Co.

Quickly disassembled into 9-foot maximum width sections, the new plant can be delivered to a different job site by truck. Easy, fast erection is a feature claimed.

Three aggregate compartments with a 38-cubic-yard total heaped



capacity and one 60-barrel cement compartment are a part of the Roustabout.

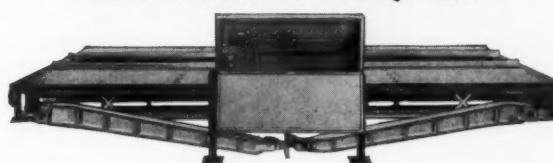
A manually operated high-speed Johnson concentric batcher weighs cement on a scale separate from the aggregate scale. Cement is discharged within the aggregates for minimum dusting and maximum pre-mixing.

The unit's cement elevator has a 180-barrel-per-hour capacity, and a boot hopper handles either bagged cement or cement delivered by rear-discharge trucks.

An electric panel board is installed with plug-in connections to motors.

For further information write to the C. S. Johnson Co., Dept. C&E, P. O. Box 71, Champaign, Ill., or use the Request Card at page 18. Circle No. 14.

WINSLOW—PORTABLE TRUCK SCALE THE CONTRACTORS' SPECIAL SCALE



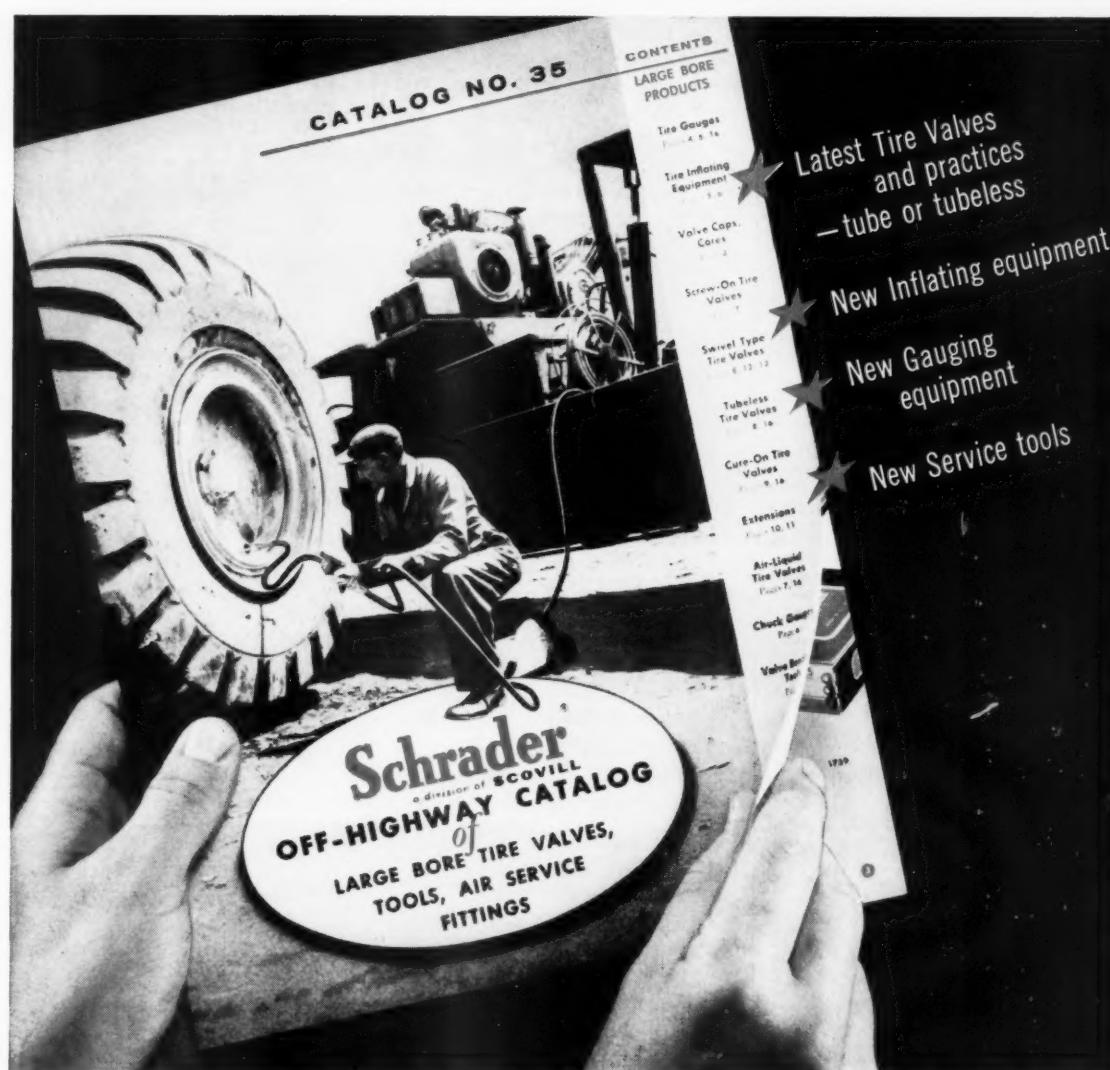
For use at temporary and permanent locations—at stock piles and by bituminous material contractors at the job site. Capacity: 15-18-20-30, 50 tons.

Write us for name of your nearest distributor

WINSLOW SCALE COMPANY

P.O. Box 1198
Terre Haute, Indiana

For more facts, use Request Card at page 18 and circle No. 340



NEW! OFF-HIGHWAY TIRE SERVICE SHORTCUTS

This catalog should be in the hands of everyone responsible for maintaining off-highway tires. Packed with data, specifications—full lines of all the latest, most practical valves, tools, fittings—easy to find information. If you haven't already received your copy, send for this catalog today.

Dept. CE-A

A. Schrader's Son • Division of Scovill Mfg. Co., Inc.
470 Vanderbilt Ave., Brooklyn 38, N. Y.

I am responsible for
Off-highway Tire Maintenance. Please send
me a copy for my use ;
 copies for Tire Service Personnel .

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

Schrader
a division of **SCOVILL**

FIRST NAME IN TIRE VALVES

FOR ORIGINAL EQUIPMENT AND REPLACEMENT

For more facts, use coupon, or Request Card at page 18 and circle No. 341



**Self-propelled trencher
digs 42-inch depth**

The Arps Corp. announces a new self-propelled, one-man-operated trencher, the Trench-Devil Model M.

The machine has four digging widths—2½, 4, 6, and 8-inch—and cuts to a depth of 42 inches. Digging speed is variable from 0 to 1,200 feet per hour.

According to the manufacturer, the machine is capable of instantaneous reversal of direction while digging, making it possible to dig vertically along a wall.

One-side dirt delivery is accomplished by a rubber-belted conveyor. An adjustable dirt deflector on the conveyor keeps the dirt as close as desired to the trench. The conveyor may be removed in 30 seconds, the company states.

The Model M weighs approximately 815 pounds, and can be easily skid-loaded on pickup trucks or small trailers. It also may be transported for short distances under its own power, at 2½ mph.

For further information write to the Arps Corp., Dept. C&E, New Holstein, Wis., or use the Request Card at page 18. Circle No. 82.

For more data on any item, circle indicated number on card at page 18.

The Trench-Devil Model M digs to a depth up to 42 inches in 2½, 4, 6, and 8-inch widths. The unit is self-propelled, and requires a single operator.

**WHY
BURY
MONEY IN
NEEDLESS
STREET
PATCHES?**

GREENLEE Hydraulic Pipe Pushers like the one shown below quickly install pipe under streets with a minimum of ditching and backfilling and *no damage to roadbeds or pavement!* A GREENLEE Pipe Pusher cuts job time and costs to a fraction. Can pay for itself on the first job—*usually* does on the first few jobs. Model shown pushes 3 4" to 4" pipe about 2 ft per minute with power pump. Larger unit available for larger pipe and concrete sewers. Instead of another useless street repair job, invest the same money in a valuable time-saving, worksaving GREENLEE Pipe Pusher! Write today for free literature.



GREENLEE TOOL CO.

2265 Columbia Avenue
Rockford, Illinois

For more facts, circle No. 342

Offer front-end loader for utility tractors

A new front-end loader for use with utility-type wheel tractors is offered by A. C. Anderson, Inc.

Designated Model E, this loader features a system of bucket roll-back and parallel linkage of the twin hydraulic lift arms said to enable complete bucket filling, as well as allow free roll-back under the load without pulling away from the bank or the dirt pole being moved. This parallel linkage feature enables the operator to keep the load closer to the tractor, and provides more complete use of hydraulic power for both "break-away" and low-level carrying.

Clearance under the bucket in

dumped position is 98 inches, and the bucket has an over-all raised height of 138 inches.

The Model E is available with any or all of three buckets: ½-cubic-yard-struck, ½-cubic-yard-struck, and 1-cubic-yard-struck snow bucket.

According to the company, Anderson lift booms, work platforms, forklifts, bulldozer blades, and snowplow blades can all be attached easily to the Model E, without special tools.

For further information write to A. C. Anderson, Inc., Dept. A-87, C&E, P. O. Box 391, Wildwood, N. J., or use the Request Card at page 18. Circle No. 41.

WARN HUBS on your Jeep®

STOP FRONT DRIVE DRAG and WEAR IN 2-WHEEL DRIVE!

Big savings in front end repairs, gas, tires, plus easier steering, handling

LOCK **LOCK** **LOCK** **LOCK**

WARN LOCKOMATIC

FREE **FREE** **FREE** **FREE**

Over 100,000 in use!

Models for all makes 4 w. ds. to 1½ tons at dealers. Write for literature.

WARN MANUFACTURING CO., Inc.
Riverton Box 6064-CNS Seattle 88, Wash.
For more facts, use Request Card at page 18 and circle No. 343

McCarthy Auger Drills for lowest cost

Produced 10,000 tons of recovery coal per month at total cost (including hauling) of \$2 per ton! Actual drilling costs were 68 cents per ton!



Powerful McCarthy drills help cut costs everywhere. The newest coal recovery units have finger-tip control of auger rotation and horizontal feed of drill. Operators have produced recovery coal for as little as \$2 per ton, including make-ready, operation, maintenance, depreciation and hauling... actual drilling cost 68 cents per ton. The McCarthy is self-moving, all hydraulic and requires just two operators. Conveyor can work from either side. Choose from twelve models. Bulletins M-101 and M-102 give complete information. Write for them now.



Model 106-24. World's fastest. Augers deeper, larger holes than any other. Speed reducer slows rotation for hard rock holes. Drills 8" and 9" dia. holes in shale and sandstone. Up to 24" in softer formations.

Manufacturer of Drilling

THE SALEM
S. ELLSWORTH AVE.

Equipment Since 1901

SALEM **TOOL CO.**
SALEM, OHIO, U.S.A.

For more facts, use Request Card at page 18 and circle No. 344



Tilting concrete mixer holds 6 cubic feet

A side-discharge, tilting concrete mixer with a 6-cubic-foot capacity is available from the Western Equipment Division of the Douglas Motors Corp.

Designated Model 6-S, the unit's features include all-welded construction and Timken bearings throughout. Power is supplied by either a Briggs Model 23R6, or Wisconsin AEN, gasoline engine; both engines develop 8.1 horsepower at 3,000 rpm. An electric motor is optional.

The Model 6-S has an over-all length of 84 inches, stands 72 inches high, is 54 inches wide, and has a 45-inch charging height.

The approximately 900-pound machine rests on 5.00 x 15 tires.

For further information write to the Western Equipment Division, Douglas Motors Corp., Dept. C&E, 1234 N. 62nd St., Milwaukee 13, Wis., or use the Request Card at page 18. Circle No. 87.

Any vehicle a radio car with new 2-way radio

A self-contained portable-mobile unit with adequate power for many 2-way communications applications is announced by the Industrial Radio Corp.



Designated PM Series, the radio can be quickly placed in operation by attaching a clip-on window antenna, and plugging the power cable into the vehicle's cigarette lighter socket.

The new unit has a built-in speaker, and features transistor-type power. Its receiver is housed in the same chrome-plated steel case with a transmitter of approximately 10 watts output. The case dimensions are only 8 x 9 x 5 inches, and the total weight is approximately 15 pounds.

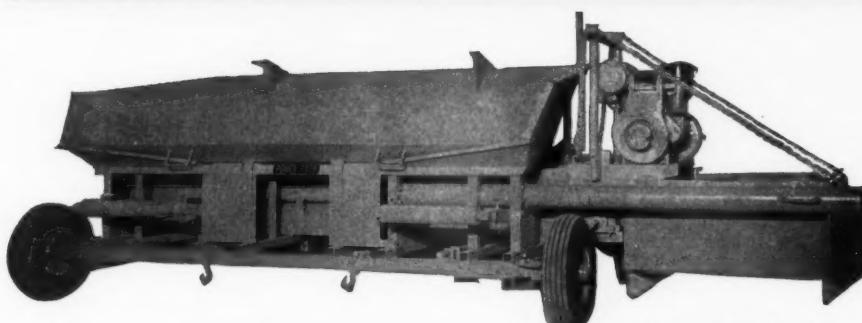
All units are designed for 12-volt operation.

Write to the Industrial Radio Corp., Dept. C&E, 428 N. Parkside Ave., Chicago 44, Ill., or use the Request Card that is bound in at page 18. Circle No. 148.

A modification of the Tusky hoist, which increases the load capacity from 1,200 to 1,500 pounds, is announced by the Tubular Structures Corp. of America. The Tusky is a portable, automatic hoist that may be towed easily from job to job by truck or car, and erected in a few minutes by one man. The unit is free-standing at its basic height of 24 feet, and extra sections may be quickly added to permit its use at heights in excess of 100 feet. For further information about the Tusky hoist, write to the Tubular Structures Corp. of America, Dept. C&E, 2960 Marsh St., Los Angeles 39, Calif., or use the Request Card at page 18. Circle No. 73.



Approved for Road Widening and Road Shoulder Jobs



**Dependable
Accurate
Fast**



Spreads Sand, Stone and Asphalt!

Word is spreading fast about the effectiveness and economy of this machine: 9 h.p. Wisconsin engine powers conveyor belt to rapidly discharge aggregate or asphalt from rugged 9 ft. hopper. Heavy steel plate side box with strike-off blade is adjustable from 2-5 ft. Rubber-tired wheels swing parallel to hopper for easy towing. **POWER-PACK** has a simple hitch for any standard dump truck or trailer dump. Can be adjusted for left or right discharge. **POWER-PACK** lays material uniformly and with clean edges—keeping hand work to a minimum. Only one operator is needed while spreading material at walking speed.

Write or phone for full details—You'll be glad you did!

POWER-PACK CONVEYOR CO.
(Glenville 1-7670)
13910 ASPINWALL AVE. CLEVELAND 10, OHIO



For more facts, use Request Card at page 18 and circle No. 345



**Guaranteed... MORE DEPENDABLE,
LOWER COST WATER
HANDLING ON ANY JOB!**

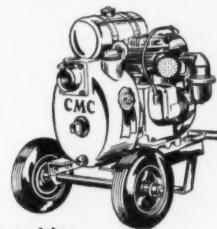
Here are pumps that have proven—on job after job, day after day—that they can take the most rugged use with the least maintenance. This spells **BIG DEPENDABLE** performance at **LOWEST** cost. **WRITE TODAY FOR NEW FREE CONTRACTORS PUMP CATALOG.**

CONSTRUCTION MACHINERY CO.,
WATERLOO, IOWA

PUMPS

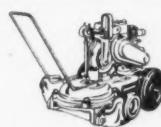
For more facts, use Request Card at page 18 and circle No. 346

DUAL PRIMERS with high lift, faster priming



Capacities
4,000 to 240,000 GPH

2", 3" & 4"
DIAPHRAGMS



2", 3", 4", 5" & 6"
HI-PRESSURE Pumps



Hydraulic controls on this P&H Model 775-TC reportedly assure accurate spotting of 70 tons at a 15-foot radius. Specifically designed for bridge and multi-story building construction, the unit permits a 200-foot lift.

New 70-ton truck crane features 200-foot lift

A 70-ton-capacity truck crane with a 200-foot lift and a high degree of mobility is announced by the Harnischfeger Corp.

Designated P&H Model 775-TC, the new unit features Magnetorque swing, a frictionless clutch mechanism for safer, smoother swing motion.

According to the company, hydraulic controls assure accurate spotting of 70 tons at a 15-foot radius. Removable front and rear outriggers and counterweights provide maximum weight reduction for fast job-to-job moves.

Both carrier and upper frames are of all-welded construction for greater rigidity. The carrier frame is of box-

section construction and, along with all boom members, is made of T-1 steel for extra strength and lighter weight.

The new crane is either gasoline or diesel-powered, and is mounted on an 8-wheel, 4-wheel-drive P&H diesel-powered carrier. The carrier is 33 feet long, 11 feet $\frac{3}{4}$ inch wide, and 13 feet $4\frac{1}{2}$ inches to the top of the cab.

When working with a standard boom, the complete unit weighs 133,800 pounds.

For further information write to the Harnischfeger Corp., Dept. C&E, 4400 W. National Ave., Milwaukee 46, Wis., or use the Request Card at page 18. Circle No. 138.

Sand and gravel washers feature enclosed gears

All Eagle washers are now equipped with totally enclosed gears running in an oil bath, the Eagle Iron Works announces. This applies to the firm's fine material washers-classifiers-dehydrators, and coarse material washers-dewaterers.

The totally enclosed gears are designed to reduce maintenance costs

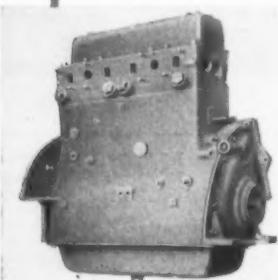
by eliminating need for frequent lubrication, and by keeping out moisture, grit, and dust.

On the washer shown, steel helical-cut gears are employed. This gear train is driven through a V-belt drive. Speed of the screw flights can be quickly changed to meet various material specifications by changing the

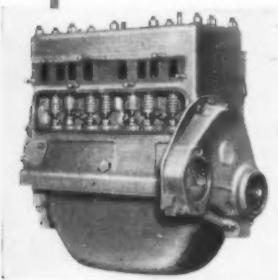
CONTINENTAL "S" Assemblies Save Money in the CONSTRUCTION INDUSTRY

Good news for every user of construction equipment with Continental power! All models in the Continental line of industrial engines are now available in "S" Assembly form—basic engine unit complete with cylinder-and-block assembly, oil pan, cylinder head, piston and valve assemblies, crankshaft, camshaft, gear cover, bearings and caps, crank and cam gears and front end plate, fully assembled and torqued to specifications.

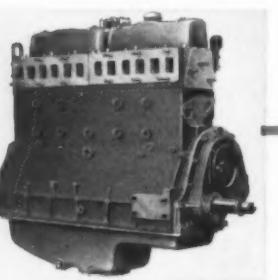
"S" Assemblies usually cost less than full overhaul, and they install in a fraction of overhaul time. And since the "S" Assembly embodies the latest results of Continental's continuing research, as regards both materials and design, it enables you to keep the very latest model on the job at all times.



DIESEL



L-HEAD



OVERHEAD VALVE

ASK YOUR EQUIPMENT DEALER ABOUT "S" ASSEMBLIES
OR WRITE THE FACTORY FOR INFORMATION



Continental Motors Corporation

MUSKEGON • MICHIGAN

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For more facts, use Request Card at page 18 and circle No. 347

ROCKFORD



Small Spring Loaded



Heavy Duty Spring Loaded



Oil or Dry Multiple Disc



Heavy Duty Over Center



Power Take-Offs



Speed Reducers

MORLIFE® CLUTCHES

Reduce the Effect of
Centrifugal Force Developed
by High-Speed Engines

Because ROCKFORD Morlife Clutches handle double the amount of torque handled by ordinary friction clutches, they enable design engineers to reduce the effect of centrifugal force developed by modern, high-speed engines. By cutting down the required diameter of the clutch, they reduce weight. By insuring better heat disposal, they multiply the clutch's work-life. While your next model is in the planning stage, it will pay you to investigate how this new type clutch will improve the operation and eliminate 90% of the clutch service requirements of your product.

SEND FOR THIS HANDY BULLETIN
BW
Gives dimensions, capacity tables and complete
specifications. Suggests typical applications.

ROCKFORD Clutch Division BORG-WARNER

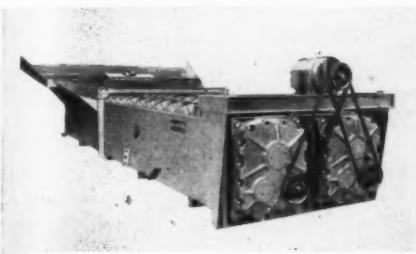
314 Catherine St., Rockford, Ill., U.S.A.

Export Sales Borg-Warner International — 36 So. Wabash, Chicago 3, Ill.

CLUTCHES

For more facts, use Request Card at page 18 and circle No. 348

CONTRACTORS AND ENGINEERS



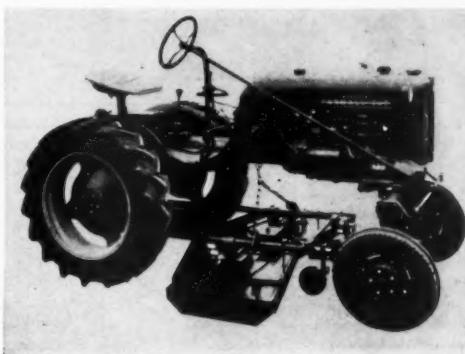
Light-duty grass mower cuts 60-inch swath

A "belly-mount" grass mower for applications including parkways and city parks is available from the Servis Equipment Co.

Designated Urban Squire Model BM-60, the unit features a 60-inch cutting swath, and is designed to be mounted on the Farmall Cub or International Low-Boy tractors.

According to Servis, it is easy to install and economical to operate.

For further information write to the Servis Equipment Co., Dept. C&E, 1000 Singleton Blvd., Dallas 21, Texas, or use the Request Card at page 18. Circle No. 125.

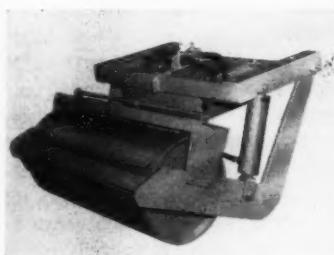


sheaves on the drive, the company states.

For further information write to Eagle Iron Works, Dept. C&E, 159 Holcomb Ave., Des Moines, Iowa, or use the Request Card at page 18. Circle No. 125.

Blacktop patch roller adapts to any dump truck

The Martin Co. has available a hydraulically operated blacktop patch roller that can be quickly and easily attached to any dump truck.



This self-cleaning, self-contained unit reportedly makes smooth, permanent patches by using powerful controlled compaction maintained by hydraulic pressure against the weight of the truck. The patcher, which is drawn up under the box for traveling, adds little weight to the vehicle, the manufacturer states.

For further information write to the Martin Co., Dept. C&E, 620 Andrews Ave., Kewanee, Ill., or use the Card at page 18. Circle No. 141.

RCA RADIO... FIRST CHOICE OF THE LEADERS



Says "Al" Fish, Operations Manager, Material Service Corp., Chicago



"I can personally vouch for the reliability of our RCA Radio"

INCREASE PROFITS with ECONOMY STEEL FORMS



Save time, money, materials when placing concrete for:

- Culverts, Bridges and Box Tunnels
- Prestressed Beams, etc.
- Tanks—Circular and Rectangular
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FOR CATALOG and full address of nearest office, write Economy Forms Corp., Box 128-E, Des Moines, Iowa.

OFFICES IN: Kansas City, Mo.; Lincoln, Nebr.; Minneapolis, Minn.; Ft. Wayne, Ind.; Milwaukee, Wis.; Cleveland, Ohio; Columbus, Ohio; Metuchen, N. J.; Rochester, N. Y.; Springfield, Mass.; Waltham, Mass.; Washington, D. C.; Decatur, Ga.; Charlotte, N. C.; Dallas, Texas; Tulsa, Okla.; Houston, Texas; Los Angeles, Cal.; Oakland, Cal.; Denver, Colo.

For more facts, circle No. 349

MAY, 1958



Tmk(s)®

RADIO CORPORATION of AMERICA

COMMUNICATIONS PRODUCTS

CAMDEN, N. J.

Radio Corporation of America,
Communications Products
Dept. F-271, Building 15-1, Camden, N. J.

In Canada: RCA VICTOR Company Limited, Montreal
 Please send me free 10 page brochure, "Increased Profits for Concrete Producers"

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Send information on the profitable use of 2 Way Radio in the construction business.

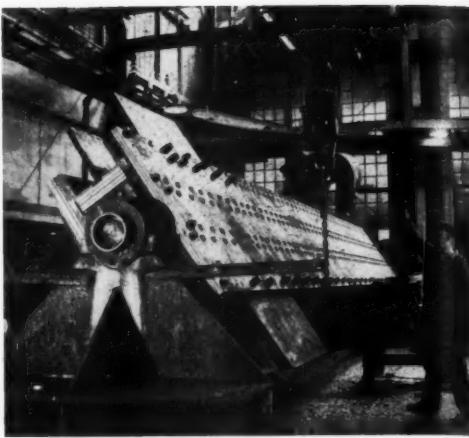
For more facts, use coupon, or Request Card at page 18 and circle No. 350



"Minifrol" miniature microphone, controls and speaker combination greatly increases dispatching efficiency.



One of the largest skyscraper columns ever built lies on a specially designed stand for fitting and riveting at Bethlehem Steel's Pottstown, Pa., works. Column sections, like this one, will comprise about 50 per cent of the 50,000 tons of structural steel for the new Chase Manhattan building in New York City.



SWENSON SPREADERS Speed Sealcoating!

Spreads Salt or Chloride for DUST CONTROL or SOIL STABILIZATION
write for complete information
SWENSON SPREADER & MFG. CO.
Lindenwood, Illinois



For more facts, use Request Card at page 18 and circle No. 351

These portable pumps prime at 30 feet lift!

Prime and reprime at lifts up to 30 feet.

Easy to move because of light in weight aluminum construction. (The rugged Midget weighs only 48 pounds.)

No check valve, so there's nothing to foul and cause priming failure.

Straight-in suction increases capacity and efficiency.

Four models to choose from:

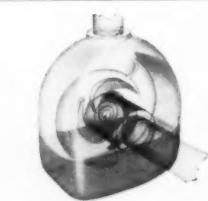
Midget	1½"	6,500 GPH	2.25 HP
Pelican	2"	8,500 GPH	2.75 HP
Hawk	2"	12,000 GPH	5.5 HP
Eagle	3"	18,000 GPH	6.8 HP

THE GORMAN-RUPP COMPANY

305 Bowman Street, Mansfield, Ohio



For more facts, use Request Card at page 18 and circle No. 352



Pump at rest—Captured liquid retained for priming. No check valve.



Priming action—Entrained air (B) escapes at (A) to be discharged. Priming liquid returns (C) to entrain more air.



Pumping action—Straight-in suction voids entrance restrictions. Water enters direct to the eye of impeller. Sediment is purged.

Huge steel columns made ready for skyscraper

Some of the largest skyscraper columns ever built are being fabricated at the Pottstown, Pa., works of Bethlehem Steel Co., Bethlehem, Pa. Designed for use in the 60-story Chase Manhattan central office building in New York City, the columns will comprise about 50 per cent of the approximately 50,000 tons of structural steel needed.

Having a maximum length of 36 feet and weighing as much as 52 tons, the individual laminated column sections are made up of plates up to 52 inches wide with a maximum thickness of 1 inch. Depending on the number of plates used and their individual thickness, completed column sections include layers of plate up to 6½ inches thick. Some of the columns in the lower part of the building will each support loads of more than 7,000 tons.

The ends of each rectangular section are milled, and center lines are marked on each of the four outside faces, to assure alignment and bearing when erected. Sections, which will anchor wind girders, are made up of 1½-inch-thick plates from which flame-cut "ears" protrude as much as three feet. The wind girders will be attached to the ears. Field holes for these larger plates are drilled to metal-bushed templates to assure matching of connections.

Each column is composed of three plate diaphragms and layers of 48-inch plate on the two wide faces. The center diaphragm is I-shaped, and the two outside diaphragms are shaped like heavy channels.

Executive promotions made by Goodyear

Five promotions have been made at the executive level of the Goodyear Tire & Rubber Co., Akron, Ohio.

Victor Holt, Jr., vice president in charge of sales, is now executive vice president.

New vice presidents for the parent company are C. C. Gibson; O. E. Miles; Sam DuPree; and M. W. Laibe.

Gibson had been vice president of the automotive products sales division. Miles had been vice president of the replacement trade sales division. Dupree had been vice president of the general products sales group. Laibe heads all purchasing, general merchandise, material control, traffic, and warehousing activities.

Three promotions at Stone & Webster

Three new vice presidents have been elected by Stone & Webster Engineering Corp., the Boston and New York engineering and construction company. The officers are the firm's comptroller, Arthur J. Good, and construction managers W. L. Sheets and H. N. McCampbell.

Good worked for E. B. Badger & Sons Co. before that firm was acquired by Stone & Webster, and from 1953 to 1957, he was managing director of E. B. Badger & Sons, Ltd., the Stone & Webster engineering subsidiary in London. He became comptroller last year.

Sheets joined Stone & Webster after serving 15 years with the U. S. Army Corps of Engineers and various power and irrigation organizations. He has served as a resident and project engineer on a number of power plants, transmission lines, and explosive plants. He became a construction manager in 1955.

Campbell, who started with Stone & Webster as a field engineer in 1920, has worked on industrial and chemical plants, plus central steam power stations in various sections of the country. Since 1953, when he was made construction manager, he has directed construction of steam stations, boiler plants, manufacturing facilities, and the portable atomic power reactor for the U. S. Army.

Prevention of ivy poisoning is topic of free booklet

A booklet designed for use in training supervisors and workers in the prevention of poison ivy and oak dermatitis is available free, and in quantities as requested, from Milburn Co., 3246 E. Woodbridge, Detroit 7, Mich.

The booklet outlines a three-point program of education, personal housekeeping and avoidance of skin contact with poison-ivy oils.

It explains the cause of poison ivy dermatitis, the way it is spread, and gives rules for avoiding contamination. Illustrations show the characteristic leaves and fruits of the poison plants.

Vice president assistant named by Miller Electric

Gordon Jacklin has been made assistant to the vice president in charge of sales for the Miller Electric Mfg. Co., Inc.

He will work under C. B. Abel on government quotations for welding equipment and will act in a liaison capacity between the sales office and the field office force.

Architect-engineer describes his structures

"The Structures of Eduardo Torroja: an Autobiography of Engineering Accomplishment" describes the design and illustrates 30 of the author's most significant structures. The structures analyzed cover many types of construction including bridges,

churches, viaducts, water towers, factories, dams, hangars, a hospital, and a restaurant.

Many of the structures are of reinforced concrete, since Torroja's most unusual engineering feats are in prestressed and post-tensioned concrete. Over 275 illustrations supplement the text and show construction details, models, projects under construction, and structures that have been completed.

The \$8.50 book may be purchased from the publisher, F. W. Dodge Corp., 119 W. 40th St., New York 18, N. Y.

Arthur D. Little, Inc., elects vice president

Gen. James M. Gavin (U. S. A., ret.) has been elected vice president and a director of Arthur D. Little, Inc., Cambridge, Mass., industrial research company.

Prior to his retirement from the Army at the end of March, Gen. Gavin was Army Chief of Research and Development. A graduate of the U. S. Military Academy at West Point, he participated in the early development of airborne warfare, be-

coming commander of the 82nd Airborne Division during World War II. Gen. Gavin later served as commander of the U. S. VII Corps in Germany.

Atlas Copco Pacific news

Gordon D. Holter, former office supervisor and purchasing agent for the Ressurection Mining Co. has joined the Denver district sales staff of Atlas Copco Pacific, Inc., San Carlos, Calif. He will work with firms in the Mountain States and eastern Wyoming.



THIS IS UNI-FORMING... THE FASTEST GROUND-TO-GROUND SYSTEM

of concrete forming capable of handling virtually any type of poured concrete structure. UNI-FORM is faster because assembly of UNI-FORM Panels with UNI-FORM Tie Keys is a simple mechanical (and automatically accurate) process... faster because minimum alignment and bracing is required on 1 side only... faster because every forming requirement is engineered into the system. In addition to its speed you'll find that the UNI-FORM System of concrete forming has many other advantages you can use to save time, money and labor.

UNI-FORMING HAS 3 BASIC ELEMENTS



1.

The UNI-FORM Panel is plywood faced, steel framed to provide strength and rigidity plus all the advantages of a nailing surface. Made in standard heights from 1 ft. to 8 ft.; widths 2 ft., 18".



2.

UNI-FORM Tie Keys lock and spread UNI-FORM Panels. Made for all wall sizes. Special ties available.



3.

UNI-FORM Tie Keys securely lock Panels and Ties together.

Want more information on the UNI-FORM System? Write for new full line catalog today.



UNIVERSAL FORM CLAMP CO.
1238 N. KOSTNER • CHICAGO 51, ILLINOIS

BRANCH OFFICES
AND WAREHOUSES

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Universal Form Clamp Co. of Canada, Ltd., 226 Norseman St., Toronto, Ontario

For more facts, use Request Card at page 18 and circle No. 353

Resurfacing process to cut repair costs on railroad overpasses

Crews welding reinforcing in place for resurfacing the Reading railroad highway overpass near Norristown, Pa., have power supplied by a Lincoln shield-arc Model SA-200 welder. The overpass carries U. S. Alternate Route 422 over the railroad.



A new resurfacing process for highway overpasses has proved to be no more expensive than many other types of paving and to require a minimum of maintenance. Designed by the Reading Co., Philadelphia, Pa., the process is being used on bridges with composition plank decks that carry state, county, or municipal roads over the Reading railroads' right-of-way.

Since all of the plank-deck bridges require constant maintenance and repair, bridge engineers of the Read-

ing Co. found that redecking the overpasses with blacktop in welded-wire fabric saved money for the railroad and eliminated a nuisance.

A typical job begins with ripping up the old wearing surface and replacing broken or deteriorated timbers. A basic 4×10 yellow pine planking is placed across the entire width of the bridge, at right angles to 12×16-inch supporting stringers.

Placed at a 45-degree angle to the planking are 1½×½-inch steel strappings on 2-foot centers. The

strapping covers half of the bridge, enabling traffic to pass over the other half on the exposed planks. The strapping, punched with 13/16-inch holes on 4-inch centers, actually spaces the ties on the open-floor bridge. The 45-degree positioning enables the strapping to act as a hold-down for the planking and prevents traffic from rutting the completed bituminous surface between the straps.

The strapping is secured to the bridge floor with 5/8×1-inch washer

head-drive spikes which tightly bind the entire planking system to the stringers. The spikes are driven with a sledge hammer into small-diameter holes in the planking and still smaller holes in the stringers.

Second work stage

The next phase of work calls for placing the welded-wire fabric and welding it to the strapping system. No. 6 gage welded-wire fabric, spaced at 6-inch centers, is used. This is furnished without any over-



the best costs less

Simplicity is the word for ROOSA MASTER fuel injection pumps. Small in size and weighing less than 10 pounds, there are fewer parts to service, fewer adjustments, which means lower service costs.

Only one model size is adaptable for either a 2, 3, 4, 6 or 8 cylinder engine. Compare its initial cost and installation cost for further proof that the best costs less.

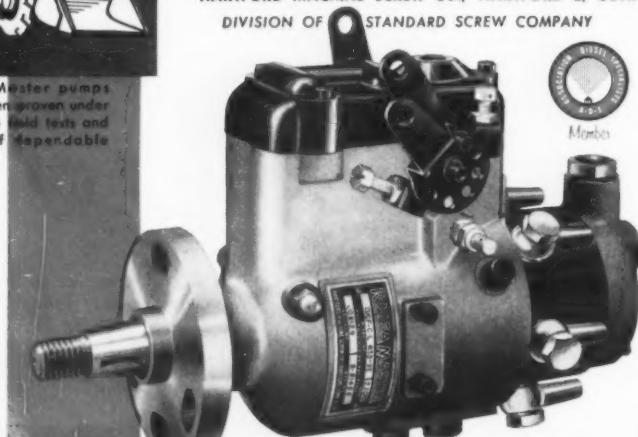


HARTFORD MACHINE SCREW CO., HARTFORD 2, CONN.
DIVISION OF STANDARD SCREW COMPANY

makes
good
diesels
better



Roosa Master pumps have been proven under extensive field tests and years of dependable service.



YOU CAN DEPEND ON THE DIESEL THAT DEPENDS ON ROOSA MASTER

For more facts, use Request Card at page 18 and circle No. 354

**DRILL 'EM
FASTER
MAKE BIGGER
PROFITS EVEN
ON CLOSER BIDS**



Hoffman 9" Bit needs no special equipment for drilling through 14" concrete floor.

**HOFFMAN'S
New-Concrete
THIN WALL DIAMOND BITS**

Go Through Reinforced Concrete In Record Time

Here's drilling news of the year for cost-cutting results on countless heavy construction jobs. Now—more than ever, Hoffman Diamond Bits assure greater drilling accuracy and economy. They cut time and costs on more than just the drilling too. They eliminate form-work on projects where openings are 14" or less.

Investigate the advantages of other Hoffman Bits that will help you speed foundation exploration for faster estimates.

Send for a copy of Hoffman's new catalogue—FREE

HOFFMAN BROS. DRILLING CO.

Box 426 Punxsutawney, Penna.

Drilling Experts Since 1902



For more facts, use Request Card at page 18 and circle No. 355



At this stage of the new resurfacing process, welded-wire fabric is tack-welded to steel strapping. The fabric prevents the finished surface from breaking up and rippling under heavy traffic.



The first 1 1/2-inch-thick course of Amiesite, a bituminous concrete, is compacted by a Huber roller. The wooden screed, used to shape the contour of the overpass, will be removed before the top course is placed.

hanging transverse wires. The fabric is placed in lengths parallel to the axis of the bridge, and tack-welded on 12-inch centers. The fabric is welded to the diagonal strapping every 12 to 18 inches. It is also welded wherever a wire passes over the head of the drive spike.

The plank flooring is then cleaned and, if wet, dried by torch. A primer course or tack coat of asphalt emulsion is spread over the planking, strapping, and fabric. The first 1 1/2-inch-thick course of Amiesite (a bi-

tuminous concrete), with 1-inch maximum-size aggregates, is then spread from a mix truck's tail gate, raked, and leveled by hand.

After the base course has been compacted, a second 1-inch-thick course is placed. This is Amiesite with a maximum aggregate of 3/8 inch. Two wooden removable screeds, curved to match the crown of the overpass, are used to shape the newly placed mix. The screeds are removed before final compaction.

(Continued on next page)



THE SMITH 75-P POWERS YOUR AIR TOOLS FOR LESS

SMITH
120-P
COMPRESSOR



SMITH COMPRESSORS ARE
IN USE THE WORLD OVER



SMITH
45-P
COMPRESSOR

Ask any Smith Compressor owner about economy! He'll tell you how the Smith 75-P replaces big compressors on scores of jobs—*adds to job profits!* The 75-P operates one heavy-duty paving breaker—two medium-duty paving breakers—or one 45-lb. rock drill. Nearly all engine and compressor parts are instantly available at reasonable cost from your Dodge Truck dealer. The 75-P is powered by a Chrysler Industrial Engine, using 3 cylinders for power, 3 for compression. Designed for high compression with large valve area, smooth carburetion. Super-finished bearings and pistons; water-jacketed discharge area. *Send coupon for free literature.*



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FREE
LITERATURE

GORDON SMITH & CO., Inc.
483 College St., Bowling Green, Kentucky
Rush free literature on the Smith 75-P 120-P 45-P (Check one or all.)

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COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

For more facts, use coupon, or Request Card at page 18 and circle No. 356

MAY, 1958



SOUTH BEND THRIFTLINE BITUMINOUS DISTRIBUTOR

powered by **37 hp**

WISCONSIN ENGINE

A model VG4D 37 hp, Wisconsin Heavy-Duty Air-Cooled Engine powers this new 1,000 gallon "South Bend" Thriftline Bituminous Distributor, manufactured by Municipal Supply Co., South Bend, Indiana. Used for heating and applying all grades of bituminous material, the new Thriftline distributed over 18,000 gallons of bituminous material per day in grueling contractor tests. Housing encloses engine, pump, and all piping, yet housing is removable, permitting quick and easy accessibility to engine. By using a Wisconsin Heavy-Duty Air-Cooled Engine, system operates at top efficiency . . . with no cooling problems, even in temperatures of 140° F. Here is proof positive that Wisconsin Engines are *right for this kind of work.* In fact, on most Distributor models, a Wisconsin Engine can substantially reduce costs.

Write for complete details covering specifications of the model VG4D Wisconsin Engine . . . Bulletin S-206.



WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46, WISCONSIN

For more facts, use Request Card at page 18 and circle No. 357

(Continued from preceding page)

The top course is then sprinkled with a screening of stone dust to seal the surface. The surfacing is allowed to set for 24 hours before the bridge is opened to traffic. After that, the sequence of operations is repeated for the second half of the bridge.

The combination of strapping, spikes, planking, and stringers adds rigidity to the bridge deck and eliminates plank movement under traffic. And the steel fabric enables the Amiesite to resist the pushing, shoving action of automobile tires, and keeps the riding surface from becoming uneven. **THE END**

*Items about men in the industry are in *Names in the News*, page 24.*

Raymond International vice president dies

Jeremiah J. Collins, vice president and a director of Raymond International, Inc., New York City, died last month at the age of 74.

Collins joined the foundation and heavy construction firm in 1912 as a construction superintendent. Since then he has served as general superintendent and project manager. Before becoming ill last September, Collins had been chairman of a management committee of Brown-Raymond-Walsh, a joint venture building five Air Force bases, a Navy base, and a 485-mile pipeline for the Navy's Bureau of Yards and Docks in Spain.

He was a life member of the American Society of Civil Engineers, a licensed professional engineer of New York State, and a member of the Moles.

"Must be that blasted squeaky pulley sounds like their mating call!"



DIESEL PILE HAMMERS

are self contained — no steam — no air — a small quantity of fuel oil for all-day operation — high driving rate — simple design — easy to maintain — write for Bulletin 57R.



McKIERNAN-TERRY CORP.
82 RICHARDS AVE., DOVER, N. J.

For more facts, circle No. 358

Goodyear International appoints vice president

Richard V. Thomas has been appointed director of international manufacturing and vice president of the Goodyear International Corp., Akron, Ohio. He was formerly assistant to the executive vice president of production.

At the same time, R. A. Jay has been promoted from manager of the engineering department to assistant to the president. He is succeeded by J. D. Petersen, former manager of electrical engineering.

IRF re-elects Merriman

H. S. Merriman has been re-elected chairman of the board of the International Road Federation.

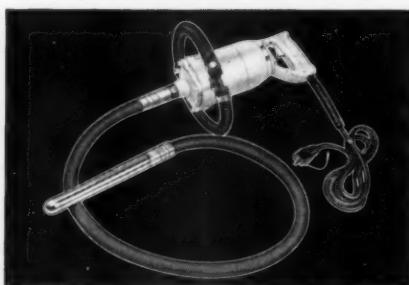
Merriman is associated with Socony Mobil Oil Co., Inc., New York, N. Y.

Habits of care, caution, and courtesy behind the wheel will contribute greatly to safety on the highway.

FAST CHANGE



White
LIGHTNING
CONCRETE VIBRATOR



See your White distributor or write White Manufacturing Co., Elkhart 9, Indiana

For more facts, use Request Card at page 18 and circle No. 359

INGRAM rollers



TANDEM
and
3 WHEEL
ROLLERS
AVAILABLE IN ALL SIZES

Acme IRON WORKS
P.O. BOX 2020 • SAN ANTONIO 6, TEXAS

For more facts, use Request Card at page 18 and circle No. 360

CONTRACTORS AND ENGINEERS

Product LITERATURE

For further information on any of the literature described in the following section, circle the designated number on the Request Card at page 18.

Rollers—a catalog of American sheepfoot, wedgefoot, flat, and pneumatic-tire rollers. Includes general description and specifications for each unit, and is illustrated with photographs.

Write to the American Steel Works, Dept. C&E, 1211 W. 27th St., Kansas City, Mo., or use the Request Card at page 18. Circle No. 143.

Wood, concrete treatments—an illustrated brochure covering the complete Sonneborn line of products for treatment of concrete floors and wood floors, as well as admixtures for concrete and mortar, and waterproofing and damp-proofing compounds. Contains data on use, quantities required, method of application, and cost.

Write to L. Sonneborn Sons, Inc., Building Products Division, Dept. G, Dept. C&E, 404 Fourth Ave., New York, 16, N. Y., or use the Request Card at page 18. Circle No. 149.

Oil heater—an illustrated brochure describing the Peak-Temp forced-circulation oil heater for high-temperature, low-pressure heating of asphalt, heavy oils, and concrete. Points out the advantages of hot-oil heating in prestressed-concrete operations.

Write to the Cleaver-Brooks Co., Dept. C&E, 411-M E. Keefe Ave., Milwaukee 12, Wis., or use the Request card at page 18. Circle No. 59.

Crawler tractor—a booklet describing the 55.7-drawbar-hp International TD-9 diesel crawler tractor. In addition to the full description of the various components of the TD-9, a complete line of matching equipment and attachments is shown. Form CR-629-H.

Write to the International Harvester Co., Construction Equipment Division, Dept. C&E, 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 47.

Bituminous distributor—literature describing the new Thrifline bituminous distributor. Two-page cutaway illustration highlights sixteen major features. Drawings show how the simplified distributing system works. Specifications; data on accessories. Catalog T-100.

Write to the Municipal Supply Co., Dept. C&E, 2508 S. Main St., South Bend 23, Ind., or use the Request Card at page 18. Circle No. 150.

Mapping equipment—a folder describing Bausch & Lomb mapping equipment including the Balplex plotter, universal tracing table, and reduction printer. Illustrated with photographs. Brief specifications.

Write to the Bausch & Lomb Optical Co., Dept. C&E, 626 St. Paul St., Rochester 2, N. Y., or use the Request Card at page 18. Circle No. 91.

Auger heads—illustrated literature describing Pengo light-duty auger heads for continuous flight augers. Also contains information on Pengo light-duty shanks. Installation data; prices.

Write to the Petersen Engineering Co., Inc., Dept. C&E, 460 Kifer Road, Santa Clara, Calif., or use the Request Card at page 18. Circle No. 133.

Tilt trailer—a specification sheet on Transport Trailers' Model TT tilt unit available with 6, 8, 10, or 12 tons capacity. Also contains data on standard and special equipment. Photos; dimensional drawing.

Write to Transport Trailers, Inc., Dept. C&E, 1234 12th St. S. W., Cedar Rapids, Iowa, or use the Request Card at page 18. Circle No. 114.

Corp., Dept. C&E, 4700 W. Division St., Chicago 51, Ill., or use the Request Card at page 18. Circle No. 78.

Tires—a catalog that lists complete specifications, and describes correct use and maintenance of B. F. Goodrich off-the-road tires for industrial use. Provides inflation and load information, as well as data on liquid

weighting of tractor tires, use of wheel weights, mounting and demounting, maintenance, use of tractor tire solution equipment, and valve and accessory equipment.

Write to the B. F. Goodrich Tire Co., Dept. C&E, 500 S. Main St., Akron, Ohio, or use the Request Card at page 18. Circle No. 80.

(Continued on next page)

NEW TD-20

NEW TD-20

NEW TD-20



...with NEW
yardage-boosting control

For more facts, use Request Card at page 18 and circle No. 361

Product Literature

Use the Request Card at page 18 to obtain any of this literature.

Prestressed-concrete plant—a brochure entitled "The Why and How of Prestressed Concrete". Details the advantages of the prestress process, and features a dimensional drawing of a Heltzel "packaged" prestressed-concrete plant.

Write to The Heltzel Steel Form & Iron Co., Dept. C&E, Warren, Ohio, or use the Request Card at page 18. Circle No. 151.

Scraper accessories—illustrated literature describing equipment and accessories for Allis-Chalmers Models TS-160, 260, and 360 motor scrapers, Models TR-260 and TW-360 motor wagons, and Models 44, 106, 108, and 315 pull-type scrapers. Form MS-1270.

Write to the Allis-Chalmers Mfg. Co., Construction Machinery Division, Dept. C&E, P. O. Box 512, Milwaukee, Wis., or use the Request Card at page 18. Circle No. 54.

Metal pipe—a folder describing Armco's Smooth-Flo sewer pipe, a corrugated metal pipe asphalt-lined to its full periphery. Discusses high-flow capacity, flexible strength, durability, economical installation, and wide size range. Illustrated with photographs. Bulletin SF-12257.

Write to Armco Drainage & Metal Products, Inc., Dept. C&E, 703 Curtis St., Middletown, Ohio, or use the Request Card at page 18. Circle No. 104.

Digital computer—a report, "Traverse Closure and Adjustment", describing the computation of the coordinates of a survey traverse, and balancing the survey obtained with a Bendix G-15 digital computer. Calculation and typeout at each station, according to the literature, require about 20 seconds for the unadjusted traverse, with an additional 15 seconds required for the balanced traverse.

Write to the Bendix Computer Division, Dept. C&E, 5630 Arbor Vitae St., Los Angeles 45, Calif., or use the Request Card at page 18. Circle No. 103.

Bituminous road materials—an informative handbook containing tables and general information relating to the use of Koppers Tarmac for road construction and maintenance. Abbreviated specifications for the various methods of Tarmac construction.

Write to the Koppers Co., Inc., Tar Products Division, Dept. C&E, Koppers Bldg., Pittsburgh 19, Pa., or use the Request Card at page 18. Circle No. 33.

Prefabricated lumber—a booklet discussing the many different types and uses of prefabricated lumber and timbers. Describes and illustrates truss and lamella roof construction, as well as applications of engineered timber construction to commercial and industrial buildings, schools, and churches. Also explains light roof framing, bridges, and public utilities requirements.

Write to the Rosboro Lumber Co., Dept. C&E, Springfield, Ore., or use the Request Card at page 18. Circle No. 113.

Concrete additive for prestress—case histories citing the role of Pozzolith concrete additive in prestressed-concrete projects in this country and abroad. A prestressed lift slab, 120-foot prestressed bridge girders, and a 2-million-gallon prestressed water tank are some of the projects covered. Both pretensioned and post-tensioned projects are presented. On-the-job photographs.

Write to The Master Builders Co., Division of American-Marietta Co., Dept. C&E, 7016 Euclid Ave., Cleveland 3, Ohio, or use the Request Card at page 18. Circle No. 95.

Bituminous road patcher—a folder describing the method of permanent road patching with the Keegan utility patcher. On-the-job photographs illustrate the operation step by step. Lists major features of the patcher.

Write to the Keegan Utility Patcher, Dept. C&E, 3830 Monroe Ave., Pittsford, N. Y., or use the Request Card at page 18. Circle No. 92.

Maintenance guide—a comprehensive maintenance manual for Caterpillar No. 933, 955, and 977 Traxcavators. Written in narrative form, the booklet explains how one Traxcavator owner improved machine performance and longevity

through good maintenance practices. Contains 160 full-color illustrations of useful service tips.

Write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the card at page 18. Circle No. 152.

Bulk-material conveyors—a bulletin on Goodman Ropewelt conveyors for bulk materials. Lists several advantages claimed for the substitution of wire ropes and linked idlers for the usual rigid structural framing and fixed idler assemblies, including greater carrying capacity, less spillage, fewer idlers, and adaptability. On-the-job photographs; close-ups, descriptions of individual components.

Write to the Goodman Mfg. Co., Industrial Mfg. Division, Dept. C&E, Halsted St. and 48th Place, Chicago 9, Ill., or use the Request Card at page 18. Circle No. 10.

Vibration screeding—a bulletin describing the advantages of striking off concrete surfaces by vibration screeding. Illustrations show the use of the vibrating screed on bridge decks, floors, and highways. A number of special applications are also discussed. Includes detailed sketches, showing how to specify special underslung beams crowned to any shape for use on bridge decks. Bulletin 587.

For further information write to the Stow Mfg. Co., Dept. C&E, 40

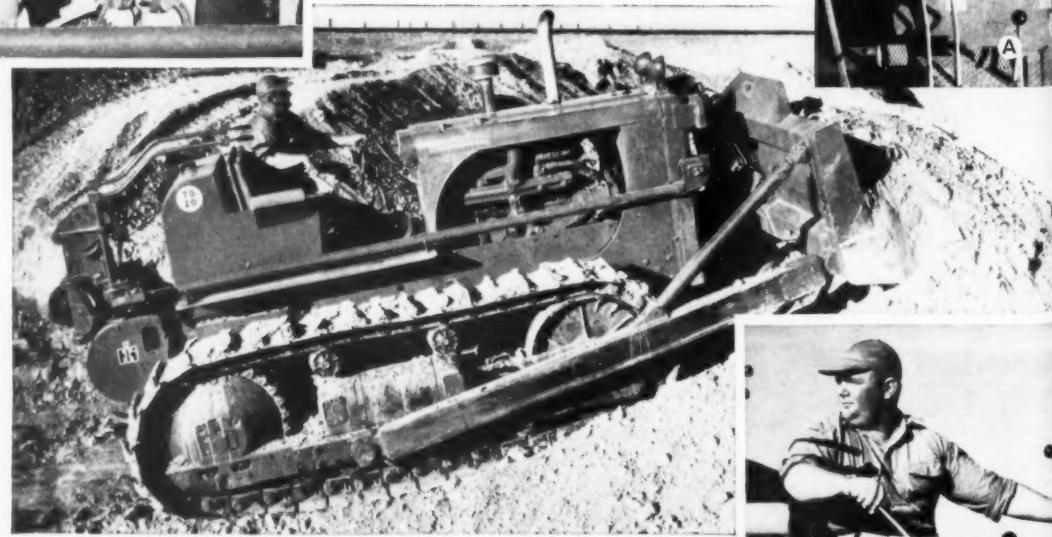
NEW 134 hp International D- SIX SPEEDS, FULL REVERSE

Shift through all six speed ranges with a "single stick"

Reverse direction in any speed range with "Shuttle-Bar"

NEW in work-capacity, the International TD-20 gives you 134 net horsepower. Revolutionary, it gives you exclusive "Shuttle-Bar" control team with an exclusive new 6-speed, "single stick" full reverse transmission! The TD-20 cycle-speeding "Shuttle-Bar" control gives you full and instant advantage of six speed ranges, forward or reverse. Never before has big crawler gear-changing and direction-changing been so fast, so easy, so productive!

Look at the TD-20 control lever grouping! Lever "A" is for shifting gears through any of the six working speed ranges. Lever "B" is the exclusive "Shuttle-Bar" which operates forward-reverse direction-changing—providing six speed ranges forward; six, reverse! Inset view shows the gear shift pattern. Visualize how one quick arm sweep can shift the TD-20 from second to fifth gear and from forward to reverse!



EXCLUSIVE TD-20 "Shuttle-Bar" shifting, reverse! Hundreds of extra cubic yards moved daily can result from TD-20 cycle-speeding shuttling action! Sweep the gearshift lever into the desired travel gear

—pulling the "Shuttle-Bar" back with the same easy arm sweep. And you're set for highballing back for the next push, as fast as 8.4 mph!



Shear St., Binghamton, N. Y., or use the Request Card at page 18. Circle No. 74.

Wire rope—an illustrated booklet describing in simple language the basic principles governing selection of the proper rope construction for any job. Also illustrated is a device called the D/d ratio for determining the best relationship of rope size to sheave or drum size. Data on wire-rope constructions; typical applications.

Write to the Leschen Wire Rope Division, H. K. Porter Co., Inc., Dept. C&E, 2727 Hamilton Ave., St. Louis 12, Mo., or use the Request Card at page 18. Circle No. 58.

Steam cleaner—an illustrated bulletin describing the Kelite fireless steam cleaner. Details the design of the unit and contains a table of specifications and a list of optional equipment. Bulletin P-7578.

Write to the Kelite Corp., Dept. C&E, 81 Industrial Road, Berkeley Heights, N. J., or use the Request Card at page 18. Circle No. 153.

Shovel-crane—a catalog on the Koehring Model 1205 excavator. Devotes a special section to the unit's car body and lower machinery. Listed capacities include 3 yards as a shovel, 3 to 4 yards as a dragline, and 95 tons as a crane. Contains a weight chart for owners who must transport

their machine, plus a diagram showing disassembly. Many on-the-job and assembly photos.

Write to the Koehring Co., Koehring Division, Dept. C&E, 3026 W. Concordia Ave., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 101.

Signs—a bulletin on Grimco traffic, street, and highway signs. Contains illustrated descriptions, as well as specifications and prices, of signs to fit a variety of needs.

Write to the Grimm Stamp & Badge Co., Dept. C&E, 8105 Rosalie Ave., St. Louis 17, Mo., or use the Request Card that is bound in at page 18. Circle No. 49.

Concrete-cost calculator—a slide-rule-type cost calculator for placing concrete is available without charge from The Prime-Mover Co. Shows how much concrete can be moved per man-hour. Also shows the cost per yard to place concrete for various distances, and labor rates, using each of three methods: wheelbarrows, hand carts, and the Model 15A Prime-Mover.

Write to The Prime-Mover Co., Dept. C&E, Highway 61 E., Muscatine, Iowa, or use the Request Card at page 18. Circle No. 72.

Soil consolidation—“Soil Compaction by Vibroflotation”, a booklet describing the soil consolidation and engineering services of the Vibroflotation Foundation Co. Illustrates the compaction of 8 to 10-foot-diameter cylinders of sandy soil to provide a firm foundation of sand for any type of structure. Illustrated with drawings and photographs.

Write to the Vibroflotation Foundation Co., Dept. C&E, 930 Fort Duquesne Blvd., Pittsburgh 22, Pa., or use the Request Card at page 18. Circle No. 3.

Aggregate temperature control—a folder on Gencomatic push-button control systems for use with Gencomatic single and multiple-burner units for heating and drying aggregates. Data on estimated tph capacities for both types of burners. Illustrated with photographs. Bulletin 112.

Write to the General Combustion Equipment Co., Dept. C&E, P. O. Box 387, Alliance, Ohio, or use the Request Card at page 18. Circle No. 7.

Federal watershed program—a brochure entitled “Your Share in the Small Watershed Program”. Points out that the Federal Watershed Protection and Flood Prevention Act is gaining momentum, with watershed projects approved for construction in more than 30 states, involving earthmoving yardage of over 44 million cubic yards. Describes and illustrates watershed jobs in Texas, Nebraska, Iowa, Delaware, Kentucky, and Oklahoma. Form D809.

Write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 21.

To obtain any of the literature described in this section, circle the number given at the end of the particular item on the handy Request Card that is bound in at page 18 of this issue.

Hydraulic excavators—a catalog describing the full Hopto line of hydraulic excavators. Illustrations show graphically the working ranges and specifications on all five Hopto models, offered in sizes from $\frac{1}{8}$ to $\frac{1}{2}$ -cubic-yard capacity.

Write to the Warner & Swasey Co., Badger Division, Dept. C&E, 1122 W. Fifth St., Winona, Minn., or use the Request Card at page 18. Circle No. 23.

Diesel engines—a booklet describing the operating and performance characteristics of the new Allis-Chalmers Models D-344 and D-516 diesel engines. Illustrated with photographs, cutaways, and charts. Catalog BU-413.

Write to the Allis-Chalmers Mfg. Co., Engine-Material Handling Division, Dept. C&E, P. O. Box 512, Milwaukee, Wis., or use the Request Card at page 18. Circle No. 65.

Batch plants—a bulletin on Fairfield batch plants. Describes a typical batch-plant installation, and is illustrated with a dimensional drawing. General specifications. Bulletin 158.

Write to The Fairfield Engineering Co., Dept. C&E, 324 Barnhart St., Marion, Ohio, or use the Request Card at page 18. Circle No. 68.

(Continued on next page)

← For more facts, circle No. 361

TD-20 crawler tractor

ULTRAVERSE, "SHUTTLE-BAR" CONTROL

any speed handling ease and speed
Bar" cost daily yardage with
W INTERNATIONAL
DROTT® TD-20 Four-in-One

the International Drott TD-20 4-in-1 in bulldozer position for earthmoving or stockpiling usually for returning the unit to “next push” position. Speedy recovery, without “turn-around” or gear-delay, you simply use exclusive TD-20 “Shuttle-shifting! New 7-roller TD-20 4-in-1 track frame gives you a full 109" of track on the ground — for balanced balance and stability.

the excavation in first or second gear with a 4-cu. yd. of dirt, a TD-20 4-in-1 can climb and dump or be backing down the ramp for a “refill”; faster any other big loader you ever saw work. Fast digging and fast “Shuttle-Bar” shifting are the reasons! For toughest digging, the new International TD-20 4-in-1 gives you a tremendous 46,800 lbs. of break-out force!

can speed up the cycle remarkably — can clip off every truck-load—add hundreds of cubic yards to daily loader capacity. You can do it whenever you can apply shuttle loading teamed with exclusive TD-20 “Shuttle-Bar” shifting! Note how this unit uses exclusive 4-in-1 clamshell bottom dump for fast action and positive clean-out of sticky materials! New full-flow hydraulic system filter protects all hydraulic parts indefinitely.



To obtain any of the literature described in this section, circle the number given at the end of the item on the Request Card bound in at page 18 of this issue.

Concrete-pipe laying—a new and revised edition of the manual, "Concrete Pressure Pipe Laying Instructions". On-the-job photos with brief explanations illustrate the step-by-step procedure in concrete-pipe-laying installation. Also provides up-to-date tables of pipe sizes and deflection data, as well as a check list of supplies and equipment needed for the job.

Write to the Price Brothers Co., Dept. C&E, 1932 E. Monument Ave., Dayton 1, Ohio, or use the Request Card at page 18. Circle No. 62.

Road building—an illustrated booklet entitled "The Power to Build America's Roads Profitably". Describes the entire job of road building from clearing to ribbon cutting. Diesel crawler tractors, wheel tractors, shovels, scrapers, motor graders, cranes, rollers, and pavers are among equipment shown. Form CR-601-H.

Write to the International Harvester Co., Construction Equipment Division, Dept. C&E, 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 48.

Photocopying—a bulletin offering suggestions for using Apeco's portable desk-top photocopy machines to maximum advantage. Discusses unusual copying operations, as well as hints for achieving high quality on routine copying jobs. Written in handy indexed form for easy reference.

Write to the American Photocopy Equipment Co., Photocopy Division, Dept. C&E, 2100 W. Dempster St., Evanston, Ill., or use the Request Card at page 18. Circle No. 55.

Transit mixers—a folder discussing features to look for in the selection of a truck for ready-mix concrete service. Includes information

on proper power-takeoff application, and describes the engineering features of the White 9000 chassis, especially suited for this service.

Write to The White Motor Co., Dept. C&E, 842 E. 79th St., Cleveland, Ohio, or use the Request Card at page 18. Circle No. 107.

Concrete inserts; form oil—literature describing PD concrete inserts for precast and prestressed-concrete structures. Same company also has available literature on its Swiss form oil said to keep forms clean with only a once-a-month application.

Write to the R. L. Spillman Co., Dept. C&E, P. O. Box 534, Station G, Columbus 7, Ohio, or use the Request Card at page 18. Circle No. 154.

Drill bits—a bulletin describing the Le Roi line of one-use drill bits. Illustrates bit construction, preparation of drill rod shanks, and lists specifications. Also contains data on heat-treating procedures. Illustrated with drawings and photographs. Bulletin RD29.

Write to the Le Roi Division, Westinghouse Air Brake Co., Dept. C&E, 3716 W. Wisconsin Ave., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 108.

Car shaker—a folder on the National car shaker for unloading bulk materials from hopper-bottom railroad cars. Lists the shaker's operating characteristics, and contains data on three basic types of installation. Action photographs.

Write to the National Conveyor & Supply Co., Dept. C&E, 359 N. Hardin Ave., Chicago 24, Ill., or use the Request Card at page 18. Circle No. 130.

Concrete admixtures—an informative booklet entitled "Proper Use of Concrete Admixtures". Covers the use of Plastiment, Sikacrete, and Sika AER for improving mix quality and uniformity. Many charts evaluate results of field tests.

Write to the Sika Chemical Corp., Dept. C&E, 35 Gregory Ave., Passaic, N. J., or use the Request Card at page 18. Circle No. 135.

Electric vibrators—a booklet containing complete data and specifications for Syntron's 14 standard vibrators. Gives information on Syntron vibrator accessories, and includes three pages of schematics of vibrator application methods. Illustrated with photographs of typical uses and installations.

Write to the Syntron Co., Dept. C&E, 227 Lexington Ave., Homer City, Pa., or use the Request Card at page 18. Circle No. 56.

Abrasive products—a pamphlet listing available sizes and other information for Carborundum masonry blades, diamond blades for concrete cutting, grinding wheels, abrasive rubs and stones, sandpaper sheets, disks and belts, and abrasive products for floor and stair installations. Illustrated with photographs.

Write to The Carborundum Co., Dept. C&E, P. O. Box 337, Niagara Falls, N. Y., or use the Request Card at page 18. Circle No. 109.

Dial scales—an illustrated catalog showing many different types of dial scales from The Howe Scale Co. Contains specifications including dial graduations, capacity, platform dimensions, and other key facts.

Write to The Howe Scale Co., Dept. C&E, 2951 Scale Ave., Rutland, Vt., or use the Request Card at page 18. Circle No. 31.

Asphalt plant dryer maintenance—a bulletin on the maintenance of aggregate dryer combustion chambers. Discusses the economics that can be enforced through the use of special refractory coatings, high-temperature patching mortars, and preventive maintenance. Deals with

← For more facts, circle No. 362



THE MIGHTY TD-24 gives you 175 Planet-Power steered drawbar horsepower!

Now, the mighty International TD-24 becomes the most powerful gear-drive crawler in its size class—with 175 full-capacity working drawbar horsepower.

Now, you get 41,130 pounds of Planet Power-controlled pull at rated rpm. Nothing else on tracks gives you this positive load control! You get full-measure, full-time live power on both tracks—to handle the same big loads on turns as on the straight-aways.

Increased horsepower is matched by new power train strength—a widened, strengthened sprocket drive

gear and pinion—for long life under tough working conditions.

Watch the TD-24 perform from the operator's seat and compare profit-production of the TD-24 to any other gear-drive, king-size crawler. See what a major part Planet Power steering has in increasing dozing, pushing, and pulling profits. See your International Construction Equipment Distributor for a new TD-20 or TD-24 demonstration!

Exclusive combination of foot decelerator for feather-touch contact—Hi-Lo power shift for a speed-away send-off—high reverse for super-fast return to the push-starting point—makes the 175 hp TD-24 unequalled as a pusher!



**International
Construction
Equipment**

International Harvester Co., 180 North Michigan Ave., Chicago 1, Ill.

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors... Self-Propelled Scrapers... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.

Product Literature

Use the Request Card at page 18 to obtain any of the literature described in this section.

such factors as flame impingement, thermal shock, proper refractory bricklaying, and combustion control.

Write to the Saverite Engineering Co., Dept. C&E, 158 14th St., Hoboken, N. J., or use the Request Card at page 18. Circle No. 85.

Dust-collector discharge gate—literature offering application information, as well as engineering and dimensional data on the Ducon Type C two-door discharge gate for dry-dust collectors. The unit is described as applicable for all dry flowable materials. Bulletin V-957.

Write to The Ducon Co., Dept. C&E, 147 E. Second St., Mineola, L. I., N. Y., or use the Request Card at page 18. Circle No. 155.

Japanese constructors view American methods

A team of Japanese experts has just finished a tour of American highways and equipment plants. The 13-member construction team studied four phases of highway work in Connecticut: bridge design and construction; problems and procedures of right-of-way acquisition; building controlled access highways; and highway construction in rural and suburban areas.

The team also investigated various highway operations in California, Texas, Louisiana, Illinois, and the District of Columbia. Several equipment plants in the Middle West were visited.

U. S. Steel appoints two vice presidents

Arthur S. Marvin has been named vice president of engineering of the American Bridge Division, U. S. Steel Corp., Pittsburgh, Pa. He succeeds J. D. Rollins, who is U. S. Steel's new vice president of facility planning.

At the same time, F. K. Goodell was made chief engineer for the division; K. D. Cunningham, district engineer; and O. H. Ormsby, assistant district engineer.

Gardner-Denver elects Bauer vice president

Richard J. Bauer has been elected a vice president of the Gardner-Denver Co., Quincy, Ill. Bauer, regional manager of the firm's oil field division, will continue to make his headquarters in Dallas, Texas.

William H. Miller has been made controller of the company. He has been assistant treasurer since 1955. Arthur D. Chilgren is a new director of the firm.

Gibbs & Hill appoints

Robert R. Baker has been named chief civil engineer of the Tampa, Fla., office of Gibbs & Hill, Inc., consulting engineers. He is in charge of the firm's Florida road and bridge design projects, and of preliminary engineering for the proposed new plant of the Florida State Fair at Tampa.

Mosquito control—literature describing Tossit insecticide capsules, which need only to be thrown into the water to destroy mosquito larvae. According to the pamphlet, one Tossit larvicide covers 100 to 750 square feet of water surface, depending on vegetation present. Illustrated with photos—one of them an underwater shot.

Write to Wyco International, Dept. C&E, 4811 Carnegie Ave., Cleveland 3, Ohio, or use the Request Card at page 18. Circle No. 122.

Crushers, screens, others—a brochure containing a description and illustration of each major type of Nordberg-built machinery. Covers the firm's diesel, gasoline, and Duafuel engines, as well as Symons crushers and screens. Bulletin 271.

Write to the Nordberg Mfg. Co., Dept. C&E, 3073 S. Chase Ave., Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 34.

BUILT TO SPREAD THE BIG ONES!

SPREADS FROM 36:00
x 54" 40 PLY, DOWN TO
14:00 CROSS SECTIONS

TWO SEPARATE UNITS that can be wheeled up to the tire and spread right where it stands. Simply engage bead hooks and use any air service hose to quickly spread casing up to 3 ft. from bead to bead for INSPECTION—SKIVING—BUFFING—INSERTING TUBES and FLAPS and PACKING AIR BAGS.

WRITE TODAY FOR OUR
NEW COMPLETE CATA-
LOG.

BRANICK MFG. CO., INC.
FARGO BOX 1937 NORTH DAKOTA

For more facts, use Request Card at page 18 and circle No. 363



The TS is shown with only an 18:00 x 24" casing so spreaders might be pictured in proper size without too large an illustration.

Whether you have it



...or not



YOU ARE PAYING FOR 2-WAY RADIO

The cost of *not* having 2-way radio is actually taking dollars out of your pocket every day . . . *more* money than it would cost to own your own Motorola 2-way radio system. Here's why!

Drivers radio in *direct* from their vehicles—*save* the delay, inconvenience and cost of telephoning. With radio contact, you can move your drivers *directly* from job to job—as they *save* miles, they also *save valuable time*. There's less back-tracking, less "dead-heading"—more efficient use of drivers and vehicles.

AND HERE'S PROOF. Even if your truck costs are as low as \$4.00 an hour (\$2.00 for driver and \$2.00 for truck)—*saving* as little as 3 minutes an hour will more than pay for your Motorola radio. Figured on a mileage basis (at a minimum cost of 7c per mile)—*saving* as little as 10 miles a day for each truck will pay for more than half of the cost of your Motorola 2-way radio system.

Get the full money *saving*, money *making* story on Motorola 2-way radio . . . complete product line—engineering service—installation—maintenance—lease/finance plans, for every need.



MOTOROLA 2-WAY RADIO

Motorola Communications & Electronics, Inc. • A Subsidiary of Motorola, Inc. • 4501 W. Augusta Boulevard, Chicago 51, Illinois

For more facts, use Request Card at page 18 and circle No. 364

**I-H president becomes
new chief executive**

Frank W. Jenks, president of International Harvester Co., Chicago, Ill., succeeds John L. McCaffrey this month as chief executive officer of the firm. McCaffrey, although retiring from active management, will continue to serve as a member of the board of directors and of the executive committee of the board. The office of chairman of the board, formerly held by McCaffrey, will not be filled.

Lee E. Coulter, new assistant to John E. Carroll, president of American Hoist & Derrick Co.



**American Hoist appoints
assistant to president**

Lee E. Coulter has been named assistant to the president of American Hoist & Derrick Co., St. Paul, Minn. The 29-year veteran of the firm has long been identified with the administration of the sales department.

Coulter will continue as assistant secretary of the company and as president of the Machinery Invest-

ment Corp., a wholly-owned subsidiary.

Archer W. Brown, former assistant mechanical engineer, has been promoted to chief mechanical engineer. He will be responsible for the design of American crawler and rubber-mounted cranes.

The new chief electrical engineer is Richard G. Lynn, a 17-year veteran of the firm's electrical department. Lynn's new duties include electrical engineering for all American Hoist products.

The former director of engineering, J. J. Hite, assumes the newly created post of principal consulting engineer for product design and manufacturing.

Kenneth F. Potter is taking over Hite's former post.

**Cleaver-Brooks forms
five sales districts**

The General Sales Division of Cleaver-Brooks Co., Milwaukee, Wis., producer of packaged boilers, has formed five sales districts with headquarters in Milwaukee, Atlanta, Dallas, San Francisco, and New York. Managers of the new districts, respectively, are R. W. Watson, Frank R. Goulding, R. E. Costin, and W. B. Stoehr. The New York manager is still to be named.

J. Allan Perham, director of the two Atlas Copco companies in the United States.



**Perham named director
of Atlas Copco firms**

J. Allan Perham has been appointed director of the Atlas Copco companies in the United States. The former sales director of Atlas Copco AB of Stockholm, Sweden, will now coordinate the operations of Atlas Copco Eastern Inc., Paterson, N. J., and Atlas Copco Pacific, Inc., San Carlos, Calif. Perham will make his headquarters in New York City.

Erik Johnsson, head of the firm's Swedish sales organization, takes over Perham's former post.

**Rogers Brothers names
new vice president**

Edward W. Scarlett has been appointed vice president and general manager of Rogers Brothers Corp.,

Edward W. Scarlett, new vice president and general manager of Rogers Brothers Corp.



Albion, Pa., manufacturers of low-bed, heavy-duty trailers. Scarlett was formerly the auditor of the company, and succeeds Harrison Rogers who resigned.

Scarlett and Edward Swaney, for several years sales manager of the company, were elected to the board of directors.

Thor division appoints

Edward T. Michalek has been promoted to assistant sales manager of the SpeedWay Division, Thor Power Tool Co., Chicago, Ill. He will coordinate expanded sales activities as an assistant to the vice president of the division. The SpeedWay Division produces portable electric tools.

William F. Fowler, Jr., general manager of the firm's administrative offices, has been appointed to the additional position of manager of branch operations.

**Vibrate your way to higher profits with...
Maginniss Hi-Lectric Concrete Vibrators**



MAGINNIS CONCRETE VIBRATORS speed up pours, cut labor costs, produce blemish-free concrete. Two 180 cycle, 120 volt models: HCV-3 for bridge, pavement and building work; HCV-6 for massive structures. Powered by choice of nine different gasoline or electric driven generators. (Uni-lectric 110 volt universal motor vibrators for small jobs, too.)



MAGINNIS INTERNAL FULL SLAB VIBRATOR ATTACHMENT provides uniform vibration of entire slab, boosts production, reduces finishing to one pass. 180 cycle induction motor-in-head vibrators, fully adjustable for any spacing, and for depths of 4 to 19 in. Powered by compact, lightweight engine-generator. Fits all makes of paving machines.



MAGINNIS SIDE FORM VIBRATOR ATTACHMENT fits all makes of paving machines. Prevents honeycomb, eliminates hand labor, speeds production. 180 cycle induction motor-in-head vibrators, fully adjustable for depth and spacing, choice of instant manual or hydraulic retraction. Generator also powers floodlights and service tools.



MAGINNIS PAVEMENT WIDENING VIBRATOR ATTACHMENT fits any widener, eliminates need for accessory vibrating screed or for hand finishing. 180 cycle induction motor-in-head vibrators in hopper plasticize stiffest concrete... permit production rates up to 25 fpm on slip-form paving. Generator also powers service tools, floodlights.

In 85 principal cities



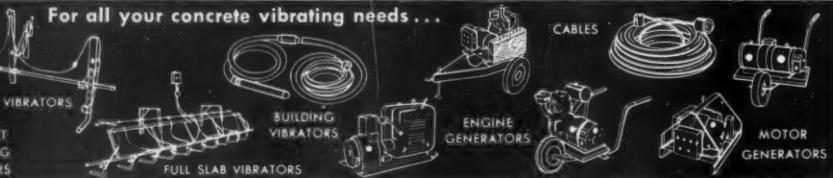
Maginniss
HI-LECTRIC
POWER
TOOLS



MAGINNIS

Power Tool Company

154 Distl Avenue, Mansfield, Ohio





V. L. Snow, left, director of engineering, and George M. Perry, director of sales for Euclid Division, General Motors Corp.

Euclid names directors of sales and engineering

George M. Perry and V. L. Snow have been appointed director of sales and director of engineering, respectively, for the Euclid Division, General Motors Corp., Cleveland, Ohio.

As director of sales, Perry will be responsible for all sales activities and liaison with General Motors Overseas Operations. He will also retain his position on the board of directors of Euclid (Great Britain) Ltd., the firm's manufacturing subsidiary in Glasgow, Scotland.

Snow, formerly director of sales, assumes responsibility for all aspects of product engineering. He replaces George E. Armington, who has resigned.

Symons Clamp appoints general sales manager

Eric W. Plane has been appointed general sales manager of Symons Clamp & Mfg. Co., Chicago, Ill. Plane



is a 12-year veteran of the concrete construction field, five of it with Symons as a sales engineer.

He has also been a concrete designer, construction superintendent for a building firm, and a salesman for a concrete-equipment supplier.

General Tire appoints national sales manager

Roy Simpson has been promoted to national manager of off-the-road tire sales for the General Tire & Rubber Co., Akron, Ohio. The former Southeast regional manager of off-the-road tire sales has been with the



Roy Simpson, national manager of off-the-road tire sales for the General Tire & Rubber Co.

company for 20 years. Simpson will now make his headquarters in the firm's home office.

Howard C. Sommer has been made director of sales of the Industrial Products Division of General Tire &

Rubber Co. at Wabash, Ind. Prior to joining General Tire, Sommer was with Dryden Rubber Division of Sheller Mfg. Co., Portland, Ind.

United Steel Fabricators names new vice president

Gerald A. Weimer has been promoted to vice president in charge of manufacturing for the United Steel Fabricators, Wooster, Ohio. The for-



Gerald A. Weimer, vice president in charge of manufacturing for United Steel Fabricators.

mer chief industrial engineer will now assume all manufacturing control over the Metal Building, Metal Door

and Frame, and Highway Products Divisions of the company.

Weimer is also chairman of the firm's executive committee.

Universal Form Clamp

J. I. McClelland has been named assistant to the president of Universal Form Clamp Co., Chicago, Ill. McClelland has also been appointed to the company's board of directors.

"We have a very satisfied operator!"



It takes *both* men and machines to get a tough job done by contract date. That's why you get better production if a machine is good enough to satisfy the experienced operator who handles it. Asst. Supt. W. B. Siviter of Birsch Construction Corp. of Norfolk, Va., reports he has a very happy operator. It's a safe guess that the machine in question is a CAT* Motor Grader—like the rugged No. 112.

Mr. Siviter said it was his operators who recommended buying the maneuverable and dependable No. 112, shown windrowing near Smithfield, Va., on Route 10. The job of widening this narrow sand and dirt road to 16' of hard surface called for an average of 8' of widening. Says Supt. Siviter of his Caterpillar Motor Grader: "Does everything we expected it to do!"

Operators will be more pleased—and efficient—due to improvements on the No. 112. An adjustable seat and a taller cab with better ventilation and more

window area than ever before assure less operator fatigue, more production.

The Cat No. 112 Motor Grader also has newly designed front axle components for extra strength and longer life. As before, its frame is made from special channels, with box section reinforcements to handle the toughest work conditions. And its Caterpillar Diesel Engine's reputation for lugging hard without fouling is well earned.

For details contact your Caterpillar Dealer—the same man you see for genuine replacement parts—parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

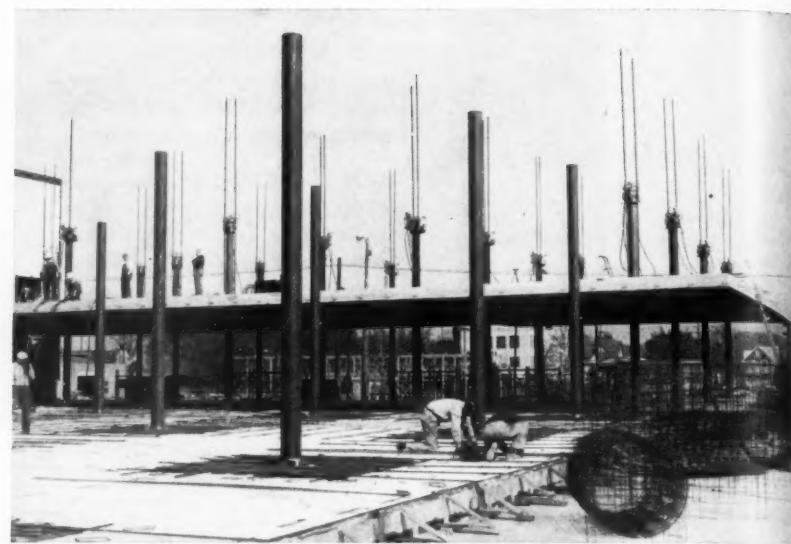
CATERPILLAR*

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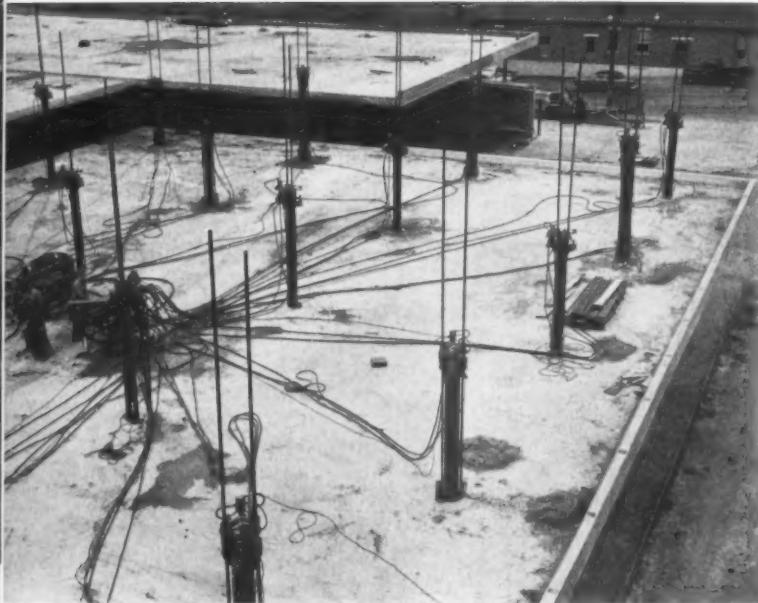
NAME THE DATE...
YOUR DEALER
WILL DEMONSTRATE



The lightweight concrete Acousti-Domes stand ready for a pour as men set reinforcing for the roof of the Line Material warehouse in South Milwaukee, Wis.



A section of the roof is lifted upward at a rate of 5 feet per hour. The 60,000-square-foot roof was divided into five sections, and the 3-foot gap between sections was later filled with concrete. Workmen are getting an adjacent section ready for concrete.



Another section of the roof is on its way up. The lifting job, handled by Great Lakes Lift Slab Corp., Chicago, was done with 75-ton-capacity jacks controlled simultaneously or individually from the master control panel.



With roof slabs in position, the Acousti-Domes show as an integral part of the roof. This did away with any need for stripping forms. The domes, sold by U.S. Construction Products Co., Milwaukee, also provide insulation and sound absorption for the building.

(Additional photo on front cover)



Ready-Mixed concrete is bucketed to the ramp for the roof parking area by a Koehring 205 truck crane.

Light pan-type concrete forms cut extra work on lift-slab job

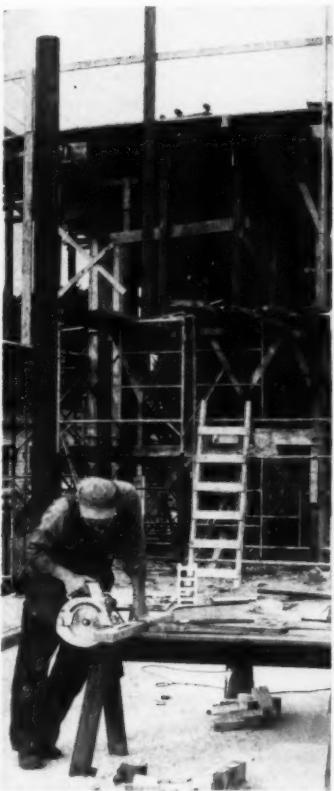
Small domes become part of 60,000-square-foot warehouse roof, saving cost of forming, insulation, finishing, acoustic work

by BILL ALLEN, field editor

Lightweight concrete domes 3 feet square proved their advantages in construction when they were used to form the lift-slab roof of the Line Material warehouse in South Milwaukee, Wis.

These perlite-concrete domes not only served as the forms for the waffle-type slab, but they also greatly added to the insulating and sound-absorptive qualities of the roof. Since the concrete shells became an integral part of the roof, form stripping was completely eliminated.

The lift-slab method of forming the roof of the 53,000-square-foot warehouse adjacent to the existing plant added to the cost and labor-saving features on this job. The entire roof was formed and poured on the floor slab; then it was raised in sections by hydraulic jacks mounted on the tops of the columns. This eliminated the need for supporting



More conventional work is also part of the job. The carpenter is cutting blocks for miscellaneous form work with a Porter-Cable saw.

formwork and gave men a clear and convenient place to work. And since men were normally working the roof slab at ground level, there was less danger of accidents.

The lift-slab work, done by Great Lakes Lift Slab Corp., Chicago, cut costs by an estimated 20 per cent, according to the general contractor, Hufschmidt Engineering Co., Milwaukee. The cost of the structural system, lifted and secured in place, is estimated to be \$2.70 per square foot. This includes columns, steel collars, shear lugs, Acousti-Domes, reinforcing steel, concrete, and poured concrete strips.

The cost of the building is estimated at \$6.50 per square foot, and this covers excavation, foundation, floor slab, concrete block walls, the items listed under the structural system, and the ramp and asphaltic-concrete surface of the roof parking area.

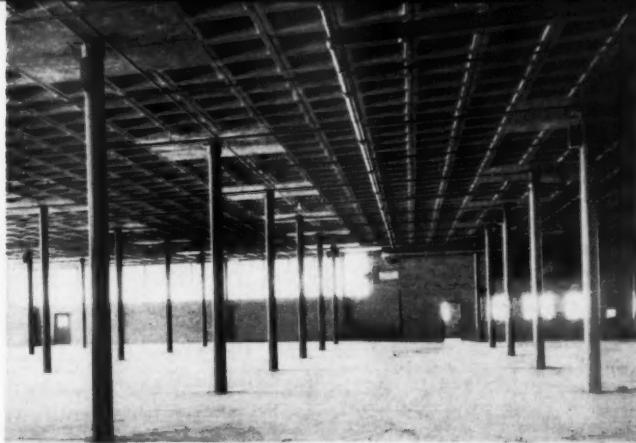
Build straight up

Location of the parking area on the roof was one of the first problems handled by the engineers of Line Materials Industries. The 53,000-square-foot warehouse is adjacent to the existing plant, occupying the only parking place previously available to employees. With no place to go but straight up, the engineers decided on the open roof of the warehouse as the best place for a parking area.

Designers of the building, Charles W. Yoder & Associates, Milwaukee, made the roof capable of withstanding live loads of 80 pounds per square foot. Access to the parking area, which can hold up to 160 cars, is gained by a single ramp built along the street side of the building. The roof is surfaced with asphaltic con-

(Continued on next page)

A waffle-like look is given the ceiling by the concrete pan-type forms. About 4,400 of the Acousti-Domes were used for the 60,000-square-foot roof. The domes are 3 feet square, 12 inches deep, and weigh 126 pounds—14 pounds per square foot.



"A plenty tough job so we called on Caterpillar equipment for this one"



South of Camarillo, Calif., J. E. Haddock, Ltd., is relocating and improving 5 miles of U.S. 101. Some 1½ million cu. yd. of rock are being moved, 7,000 cu. yd. on an average day. Three Caterpillar DW21-Athey PR21 rigs help, carrying 18 cu. yd. apiece. The round trip is a mile, including a 12% grade.

"This job is plenty tough," says Neal E. Saul, project superintendent, "so we called on Caterpillar equipment for this one. Caterpillar gives us satisfactory service with a minimum of down time."

Now Athey PR21 Rear Dump Trailers are powered by new Cat DW21 (Series D) Tractors. They feature new Super-Turbo Engines that provide 320 HP (maximum output) and twice as much torque rise as before! Results: faster cycles, greater production —for you.

Other features, as articulated design and non-stop 90° turns in 33½-ft. diameter, let the DW21-PR21 maneuver in crowded, cramped quarters. Three-stage, double-acting hydraulic rams, 60° tilt and

straight body interior permit fast, clean dumping. The PR21 is 14 ft. 1 in. long, 9 ft. wide, allowing fast, easy shovel loading. Below are other Athey trailers suited to construction work.

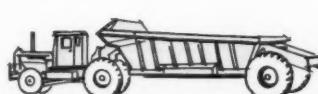
The complete trailer line of Athey is available through your Caterpillar Dealer. Let him demonstrate on your job the hauling unit that's best suited to your requirements.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

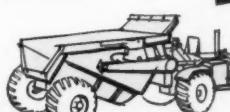
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BY THE LEADERS



DW20-PW20, 40-ton capacity, speeds to 35.8 MPH. Exclusive 3-door, bottom dump design and high arch axle minimize dumping resistance.



"PR" Series — rear dump. Available for the DW21 (above), DW20 (34-ton cap., 23-second dump), DW15 (22-ton cap., speeds to 37.2 MPH, 13-second dump).



"PD" Series — side dump. Available for the DW20 (30-ton cap.) and DW15 (20-ton cap.). Both have 70° dumping angle and can dump on the run.

For more facts, use Request Card at page 18 and circle No. 367

(Continued from preceding page)

crete, which rests on a waterproof membrane. Surrounding the open deck is a 1-foot curb with a steel railing.

Floor slab vacuum-cured

The 6-inch floor slab, poured after the pipe columns were erected, received special treatment. To get a denser concrete with a harder surface, the contractor used vacuum pads to pull the excess water out of the concrete shortly after screeding. With a vacuum of 18 inches of mercury, as many as 12 plywood and canvas pads were used in the operation. The surface of the slab was floated and finished by Whiteman troweling machines. In order to get a better

surface to receive the first slab, crews gave the floor slab a final finish by hand.

The 60,000-square-foot roof area was blocked out into five separate sections so that each section could be formed, poured, and lifted as a unit. The 3-foot gap between sections was filled in after the roof had been lifted.

Lightweight domes

Approximately 4,400 lightweight domes were used to form the roof slab. These Acousti-Domes, sold by U. S. Construction Products Co., Milwaukee, weigh only 126 pounds each, or 14 pounds per square foot. The 3-foot-square spans, 12 inches deep, have 2-inch-thick walls of perlite concrete. Their ability to resist the

flow of heat or cold was particularly desirable since insulation could not be placed on the upper surface of the roof.

The placing of domes side by side on the floor slab went fast. A forklift carried a stack of six from the delivery truck to workmen. Two men, using a bar thrust through loops cast in the concrete, set each dome in position. No domes were set in a 9-foot square around each column. These areas received a solid 14.5 inches of heavily reinforced concrete. Columns were on 24-foot centers, both ways.

The next step was the application of a calking compound to seal the cracks between the edges of the domes. The larger cracks were sealed with a Handicalk compound applied by an Alemite material pump. Smaller cracks were sealed with ordinary black mastic applied with a hand gun.

Working the roof slab at ground level simplified the setting of reinforcing steel. Most of the steel did not have to be handled by crane; it could be carried by hand to where it was needed. Four bars of $\frac{1}{2}$ and $\frac{3}{4}$ inch steel were set along the joist sections. The 9-foot-square blocks enclosing each column received a heavy mat of 1-inch steel set on 11-inch chairs.

After the joints had been sealed and the steel set, each section of the lift slab was poured. Hufschmidt Engineering Co. normally used its Koehring 205 truck crane to bucket the ready-mix concrete to the forms. The 3,750-pound test concrete was vibrated and struck off $2\frac{1}{2}$ inches above the tops of the domes. After the surface was finished, the concrete was allowed to cure for 14 days.

Raising the roof

To lift the slab sections, Great Lakes Lift Slab Corp. used dual-phase hydraulic jacks mounted at the tops of the 10-inch pipe columns.

Two threaded rods extended down from the jacks to steel collars embedded in the slab. Each jack was rated at 75-ton capacity.

The jacks could be controlled either simultaneously or individually from a master control panel. The console was powered by a 24-volt system, with the main hydraulic pressure generated by a portable pump. Both a high and a low-pressure system were used to accommodate different loadings on the jacks. The high-pressure system ranged between 1,800 and 2,400 psi.

The slab was lifted at an average rate of 5 feet per hour in 3-inch increments. As it was lifted, a take-up motor rotated a nut on the threaded rod to hold the gain made by the jack. As the slab neared its final

Weldynamics

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How often have you needed electric power on a job before commercial lines were available? Weldynamics bring you low cost, easy-to-use power in the form of Weldanpower. Weldanpower generates 5KVA of 230 and 115 volt power and 200 amps welding current with one machine. It's the answer to the contractor's power problems. Lightweight, compact, easily trucked from one job to another, Weldanpower packs a lot of punch!

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The World's Finest
Low-Cost
Precision Testers

For
CYLINDERS
CUBES
BLOCKS
BEAMS
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YOU NEED—GET IN TOUCH WITH

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and Water Hose**



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Strong, durable couplings with a reputation for long, reliable service among Contractors and other users of suction and water hose. Although built to take severest on-the-job punishment, they have refinements which contribute to outstanding efficiency and ease of handling . . . absolute uniformity in quality, threading and dimensions . . . well defined, smoothly finished corrugations.

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For more facts, circle No. 370

CONTRACTORS AND ENGINEERS

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The 6-foot concrete slabs that will be used as stops for the front wheels of cars parking on the roof are individually precast. Forms are of sheet metal backed by 2×8's. They will be doweled into the asphalt topping of the concrete roof.



height, workmen checked its position by markings on the pipe columns. The workmen and the console operator used telephones to talk the slab into its final position, giving the warehouse a clearance of 17 feet 3 inches. The heaviest section lifted was 250 tons.

To hold the roof in its final position, crews welded split collars to the column and to the lifting cap at the bottom of the slab. Tops of the pipe columns were later burned off and sealed with concrete. After the slab was in place, 2 inches of asphaltic concrete was laid on top of a waterproof membrane.

Personnel

Jim Hufschmidt was the superintendent for Hufschmidt Engineering Co. Supervising the job for Line Material were A. T. Murphy, plant engineer, and Ivan Luenzmann, field supervisor.

THE END

New district office opened by Sika Chemical

Sika Chemical Corp., Passaic, N. J., has opened a new district office—its tenth—in Atlanta, Ga. The firm manufactures a complete line of concrete additives for improving the quality of concrete and for waterproofing.

The district manager for the office is Thomas Seale. Located at 190 Cliftonwood Ave., N. E., the new office will provide service for contractors in Georgia, South Carolina, Alabama, eastern Tennessee, and northern Florida.

New firm to auction construction machinery

A new company, Case & White Auctioneers, Gainesville, Texas, is specializing in the sale of all types of heavy equipment for the construction industry. Members of the staff have had a number of years' experience in the auction field. Offices of the firm are in the Tuner Hotel Building in Gainesville.

Look for C&E's June issue, featuring efficiency and economy in methods, machinery, men, maintenance, materials, and management.

MAY, 1958

A California redwood log, 16 feet in diameter and believed to be the largest redwood ever sawed, will be on exhibit in the U. S. pavilion at the Brussels World's Fair this year. It is 3 feet long, and weighs 13 tons.

YES! YOU CAN BUY DIRECT SEND US YOUR ORDERS FOR NEW ROTARY SWEEPER BROOM CORES

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SUGGESTION—To faraway users. Order cores only without fibres but ready to fill.

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Also Cores Made to Your Specifications

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SINCE 1928
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Road Builders — it's sensational! BIG PECKERWOOD BIG

C-O-N-T-I-N-U-O-U-S

Drag Broom Levelers with Spring Steel Wires or Bass Fibres six inches wide and lengths to 12 feet, and also now three inches wide. No frame required.



Also furnished fitted with Palmyra-Nickel or Bass Fibres or even Spring Steel Wires.

WE SHIP WORLDWIDE—IMMEDIATELY

In stock — ONLY \$350 FOOT

Length 4', 6', 8', or 12'. Wt. approx. 5 1/2 lb. (foot)

THE LITTLE PECKERWOOD

3" wide, 15" long, with two bolts, fits your present frame.

ONLY \$250 EACH

"TO STAY COMPETITIVE" THIS CONTRACTOR USES A LORAIN SP-107

This Lorain SP-107 owner (name on request), plans housing developments, builds and sells homes. As a builder, he is constantly on the alert for new and better ways of doing things—for as he says: "Only in that way can my company stay competitive."

That's why when he first heard about the new 3/8-yard Lorain SP-107 he contacted the local Thew-Lorain Distributor to inspect this machine that could give him both profit-producing digging plus real get-around mobility. He wanted a small excavator that could be dispatched to dig small basements, put in sewer laterals and storm sewers, and be a general "handy-andy" on his larger housing projects.

Convinced the agile, high-speed Lorain SP-107 was the machine he needed, he put an SP-107 to work in November, 1957.

And, this is what he reports: "Since then, this has been a busy machine. In fact, it zips around so fast that the boys call it 'Sputnik.' We sure like the SP-107's ability to get into and out of tight places. The 'square' design gives it good balance and it is able to dig from any angle" — without setting outriggers.

Here are other SP-107 features that make it a valuable contractors' tool:

- 4-wheel drive to "go anywhere"—streets, mud, hills.
- 4-wheel steering is available for maximum—even sideways—maneuverability.
- 3 or 6 travel speeds — up to 15 m.p.h.
- Torque converter plus automatic transmission . . . gives it lots of hang on . . . won't give up when the digging or traveling is tough.
- Hydraulic control of all clutches . . . the Lorain SP-107 is easy, simple and fast to operate.
- Power steering and power brakes make the Lorain SP-107 easy, simple to handle.

Your Thew-Lorain Distributor will be glad to demonstrate the Lorain SP-107. Find out the many ways you can use this profit-making contractors' tool.



Equipped as a hoe, the SP-107 digs straight-sided, square-cornered basements.



At the job site, 4-wheel, high traction drive and big-tire flotation roll the SP-107 in over soft, rough terrain. Maneuvers easily in tight places.

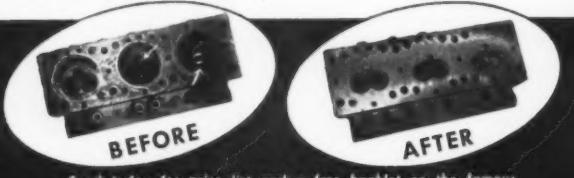
On the run between jobs — speeds up to 15 m.p.h. get the SP-107 into action faster — no hauling costs.



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You can save 50% of replacement cost with Factory Rebuilt Swick-Guth Heads. Swick-Guth restores cracked or worn heads, blocks, transmission cases to a Guaranteed good as new condition by the Controlled Heat Process... successfully used for more than a Quarter Century.



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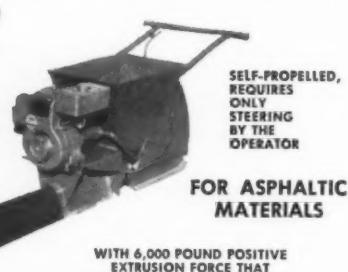


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Can be used for asphaltic concrete, pre-mix, caliche base, gravel, crushed rock and sandy top soil. The double-action gives you a highly compact, uniform layer that is exactly the same thickness from start to finish of every pass. Lays a radius as easily as driving a truck around the corner—absolutely no side slippage, and, you can pave right up to curbs and buildings. Out performs other spreaders costing much more.

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WITH 6,000 POUND POSITIVE EXTRUSION FORCE THAT

ELIMINATES CLOGGING

Easily lays up to 150 feet of 6" asphalt curb per hour... curb forms up to 12" high and 24" wide are easily interchanged... lays center line of curb within 9" of wall... eliminates the building of curb forms... produces high density curb that requires no packing... uses hot-mix asphaltic material and special mixes of Portland cement.



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Planning and Production:

Developing production

through cost controls

by **GEORGE E. DEATHERAGE, P. E.**
construction consultant



ruptcy, but cannot offer anything of value in preventing new restrictions placed on construction by the government. The only way to foresee these is to be acutely aware of the current political and economic situation. Weekly construction cost indices, current news articles, and publications of the Bureau of Labor Statistics will keep the contractor reasonably informed.

Preventing bankruptcy

To keep in business, the contractor should check the credit of his customer and check the contract. The contractor should not have excessive assets, such as too much equipment, land, or fixtures. Sometimes, however, the contractor will not have complete control over fixed assets. He might buy a great deal of equipment for a large job and then, when the job is completed, have the equipment left on his hands.

It is conceivable that a contractor may make a little money on direct labor units in the field but that, by not properly estimating job and office overhead costs, the small profit will be insufficient to permit him to continue in business.

Cost controls can prevent bank-

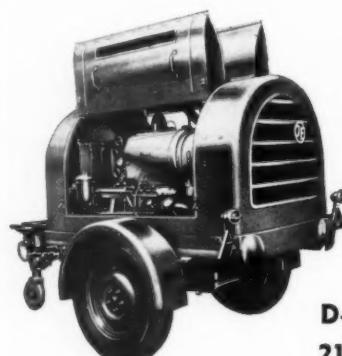
ruptcy failures from unbalanced experience can be traced to two factors: the contractor's ignorance of

Dependable

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• NO REPAIRS OR MAINTENANCE

The I. & E. Diesel-driven air cooled compressor can be depended on for continuous demanding service all day, every day. A major corporation put their first unit in operation in July 1957. The work meter shows over eleven hundred hours of operation in plant service, and sandblasting air supply. The first spare part has yet to be used. Aside from periodic checks, and oil changes the first cent has yet to be spent for repair or maintenance.



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215 cfm.

It is a matter of experience and not of wonder that I. & E. compressors can be guaranteed for three months of service.

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CONTRACTORS AND ENGINEERS

This is the thirtieth of a series of articles on Construction Management by George E. Deatherage, P. E., construction consultant. The articles are based on an eight-volume "Manual of Advanced Construction Management" published by Geo. E. Deatherage & Son, Satsuma, Fla. The manual is used in a training course for superintendents and project managers, and is directed primarily at those contractor employees who have reached the foreman level or its equivalent, and who need practical help in order to take complete charge of construction projects themselves.

Figure 1

(The words-debits, credit etc. will not appear on the books.)	Debit-Debt Comes In. Left Hand	Credit. Goes Out. Right Hand
Jan. 1st.		
Cash.....	\$10,000.00	
Exchange Bank.....		\$10,000.00
Merchandise (Cement 5 sacks).....	5.00	
Cash.....		5.00
Cash.....	3.75	
Cement-3 sacks.....		3.75

sound business management, or his venturing into an unfamiliar type of work. Although there is no perfect substitute for personal experience in running a business, study and training in construction management will prevent one from making mistakes that lead to bankruptcy.

A common cause of failure for contractors and subcontractors is the lack of balance between on-the-job skills and knowledge of how to organize and run the office. Many start in business with the idea that all they have to know is how to get the work done in the field. They learn otherwise the hard way, by going bankrupt and having to start over again.

It is a great advantage for a contractor in one class of construction to remain with it and gain the greatest amount of proficiency in that specific class of work. Few men are versatile enough to be tops in every type of construction. If their work has fluctuated between home building, road building, and dam construc-

tion, their experience is definitely unbalanced. They do not know enough about any one of these fields to be successful.

Bankruptcies from other causes

Failure from heavy operating costs is definitely due to poor management. Heavy operating costs result from not knowing what the right costs should be and permitting the situation to get out of hand, or from knowing what the costs should be and doing nothing about it.

Large inventories account for many bankruptcies. These can be avoided by paying proper attention to price trends and general business conditions. The best policy is to purchase equipment and materials only for jobs under way, and not in anticipation of jobs.

The fundamentals of sound construction business management are the same for all phases of work. There are the same functions to perform: estimating, making proposals, enter-

(Continued on next page)

Rome Disk Plowing Harrows



Rome Master Disk Plowing Harrow takes a deep cut, turning material over so that excess moisture can evaporate.

BUILD ideal SUBBASE for roads, airports and dams

For faster, more efficient pulverizing, aerating, blending and stabilizing of subbase materials put a Rome Disk Plowing Harrow on your job! Here's the weight and design to cut deep — pulverizing action to thoroughly mix the subbase and return material to its original position — free from ruts or windrows — the ruggedness to match the power of the largest crawlers.

Rome Disk Plowing Harrows are ruggedly-built for heavy-duty construction work. Massive main frames hold gangs level and make them penetrate uniformly. Super-strong bearings — your choice of Timken Roller or White Hard Iron — hold blades rigidly in position, provide easy rolling action. Notched blades are the finest made to withstand the punishment of rocks and stumps. Rome Disk Plowing Harrows are available in a variety of widths, in both offset and Rome Master Tandem. You have your choice of mechanical, hydraulic or cable control angling methods as well as wheel-type offsets in certain sizes.

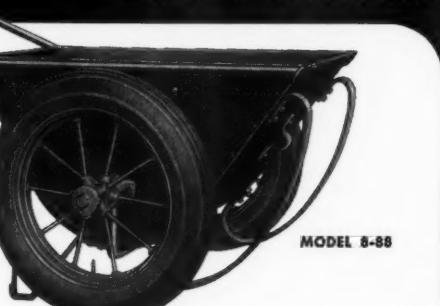
Get all the facts at your Rome-Caterpillar Dealers.

ROME PLOW COMPANY, Cedartown, Georgia

YOUR ROME DEALER IS YOUR CATERPILLAR DEALER

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CONCRETE CARTS by **JACKSON** TRADE MARK Oldest and Largest Wheelbarrow Maker In America



MODEL 8-88

OTHER FAMOUS JACKSON PRODUCTS

- WHEELBARROWS
- WHEELS
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- MIXING BOXES
- MORTAR PANS

Rugged Jackson concrete carts have perfect balance and rocker runners for controlled dumping. Won't roll back on operator. Equipped with drop axles. Steel or pneumatic tired wheels with roller bearings and zerk fittings. Available in many models with 6, 8, or 10½ cu. ft. heaped capacity.

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MAY, 1958

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(Continued from preceding page)

ing into contracts, engineering planning and scheduling work, making material takeoffs and purchasing, securing tools and equipment, costing and cost control, accounting and collections. Labor relations, and safety and management functions round out the list.

Costs, cost controls

Cost accounts are rooted in book-keeping and accounting, and the job superintendent should know how a record of all materials and services, coming in and going out, is kept in a journal and ledger.

The record of every transaction is shown in two entries: one for the material or services coming into the

business, and the other for the money paid or services and materials supplied. These opposing entries must always be for equal amounts.

The left-hand column, both in a journal and ledger, is used for what is received, and this is termed a debit. The right-hand column, both in a journal and ledger, shows what is paid, and this is termed a credit.

A journal consists of ruled pages in which all transactions are posted as they develop, one after another, regardless of whether they deal with materials, labor, or cash. Everything is entered as it happens, by date and amount. Two entries are made, debit and credit, and the amounts of the two entries must equal each other or the journal will not be in balance. The debit is always written one line

above the credit.

If the contractor wishes to find out how much he has spent for materials, he would have to pick the amounts out of the journal and add them together. This would be a slow and unsatisfactory process.

To simplify matters, he has another book called a ledger. Each page or two of the ledger is headed for each kind of transaction that appears in the journal. All the items for cement, for example, are taken from the journal and posted on a sheet titled "Cement" in the ledger. The ledger classifies and summarizes all transactions of one kind.

Typical journal entries

If, for instance, a contractor starts business on January 1 by borrowing \$10,000 from the Exchange Bank, he makes an entry of "cash" and next to that, under debit, \$10,000. (See Figure 1.) Underneath this he writes "Exchange Bank" and enters \$10,000 under credit. This shows that he has received \$10,000 in cash, and that the business is indebted to the Exchange Bank for the same amount.

The next day, the same contractor buys five sacks of cement for \$1 per sack. The entry will be "Merchandise (cement—5 sacks)", with a debit and credit of \$5. This shows that the contractor has received \$5 in cement and has paid out \$5 in cash. The cement comes in, and the cash goes out.

When he records a sale of three sacks of cement for \$1.25 each, the contractor writes "cash" and then a debit of \$3.75. Under this he enters "cement—3 sacks, \$3.75".

Ledger entries

Generally, journal entries are posted in the ledger once a month. All items that concern cash are on one page; all items concerning cement are on another page. Under debit cash, for example, the contractor writes "Jan 1-J, \$10,000".

The "J" following the date indicates that the posting has been made from the journal as of the date stated. It is not necessary to write down all the names and other details in the ledger, as there is already a full account of the transaction in the journal.

By adding up all the items on the left-hand side (coming in) and subtracting this amount from the amount of items on the right-hand side (going out) you will have the balance of cash on hand. If no other transactions took place, the difference should equal the bank account's amount of cash on hand.

Every item in the journal must be posted to the ledger accounts, the journal entries being checked off as they are transferred. This is known as the double-entry system. Each left-hand entry in the journal becomes a left-hand entry in the ledger, and each right-hand entry in the journal goes into the right-hand side of the ledger. As the totals of the two column entries in the journal are equal, the total of all left-hand accounts, debits, in the ledger must equal the total of the entries, credits, on the right-hand side.

Trial balance

To see if the ledger accounts are correct, the contractor gets the sum total of all the debit accounts and the sum total of the credit accounts. Both totals must balance out. This is called proving the ledger or taking a trial balance. Ordinarily, this is done once a month, and at that time new ledger sheets are prepared for the month to come. This gives the bookkeeper separate summaries for each month of the year.

Taking a trial balance is not the same as getting out a statement. A statement is a summary of the condition of the business, and is usually done annually when the books are closed for the year.

Merchandise and cash accounts are

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Model 410T



Model 418T—With dome type Fresnel.



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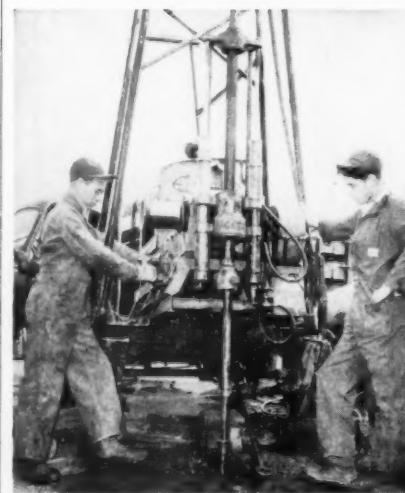
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known as real accounts, because they represent real property on hand. Real accounts, dealing with real property, show the amount on hand and the amount owed. The merchandise can be sold, and the money returned.

Forces which cause money either to come in or go out of the business, but do not represent real property, are known as force accounts or nominal accounts. Force accounts record only where money has come from and where it has gone, and deals with the past. For example, \$400 for payrolls has been used up and the contractor cannot sell it and get his money back.

When a force is one which causes money to come into the business, the force is creditable. If the force, like rent expense, results in paying out money the debit goes on the force account.

Inventories

In any business it is not practical to go back through the journal and figure out what articles have been sold and the cost. By taking inventory one can find out how much of each item is on hand.

In taking inventory at the end of the year, suppose the goods on hand are being turned over to a new storekeeper. In the journal entry, the new storekeeper receives a debit, and the old storekeeper is credited for the goods on hand, even though the goods are not physically turned over to the new storekeeper.

The debit entry of the ledger shows the amount for which the new storekeeper is responsible. The credit side of the ledger entry, made to the old account, shows what has been paid out. Closing this account shows the contractor what profit he has made on the goods.

At the time of the inventory, all merchandise was taken out of the old account and placed in the new one. The journal entry that was made

subtracted all the goods on hand from the old account and added the goods to the new account. What remains is the profit. The old merchandise account is now a force account, having been changed from a real account when the inventory was transferred. It now measures only profit.

Rent expense is a force account, and the difference between this expense and the value of the merchandise of the old account is the net profit. If, for instance, the old merchandise account has a credit of \$6,000 and a debit of \$4,500, the profit is \$1,500. If rent is \$1,000, this is deducted from the \$1,500, leaving a net profit of \$500.

When all force accounts are brought together in the ledger, those with a

credit balance on one side and those with a debit balance on the other, the difference between the totals will be the net profit or loss.

Final answers for a balance sheet are shown after books are closed and a trial balance made. If the owner wishes to know his income and expenses for the year, he can refer to the profit-and-loss account, or the figures can be copied for a profit-and-loss statement.

Closing the books for the year means taking an inventory, opening up a new merchandise account, closing all force accounts into profit and loss, and then closing the profit-and-loss account into the owner's account.

(Next month's article will deal with "Planning and production: Job and labor accounts".)

Lift Slab of Florida names field engineer

An architect who has worked in California, Nevada, England, and China is now serving as a field engineer for Lift Slab of Florida, Inc., overseeing field operations in the southern part of the state. The new field engineer is Lyn Carolin, who in the last eleven years has concentrated on designing apartment houses, office buildings, churches, and homes throughout the states of California and Nevada.

Lift Slab of Florida, located at 410 E. Beach Blvd., Hallandale, is a licensed firm using the Youtz-Slick method of construction for lifting concrete roof and floor slabs into place.

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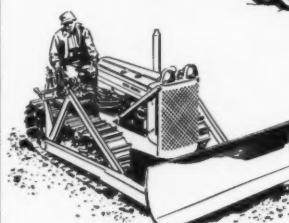
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MAY, 1958

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The federal purses have snapped wide open in an effort to combat the economic recession. Congress this spring passed major bills on highways, rivers and harbors, and housing, and waiting behind this legislation were proposals for a variety of additional public works projects.

The Administration tried to put a brake on this legislative zeal by opposing "make-work" projects for their own sake. Massive public works, it was said, are too slow moving to give the economy a quick stimulus.

Nevertheless, the Administration was doing its bit to accelerate public-works spending. The President followed this up by again vetoing the rivers and harbors measure.

The highway bill speeded through Congress under an anti-recession banner. The measure steps up construction authorizations for the Interstate System through fiscal 1961, provides liberal outlays for the regular ABC system in the same period, and provides for controlling of outdoor advertising along the Interstate System.

Controversy over the billboard provision, which originated in the Senate, almost dragged the whole bill down. The House had no such clause in the measure it passed, and a conference committee was called, which agreed by a divided vote to go along. The House then concurred, but only after defeating a recommittal motion.

The advertising provision gives an incentive bonus of 0.5 per cent in federal funds to states which agree to regulate signboards within 660 feet of interstate highways, in line with na-

tional standards to be prescribed by the Secretary of Commerce. States adhering to the standards will get 90.5 instead of 90 per cent as their share of federal funds for interstate projects.

The bill raises authorizations for interstate highways by \$800 million: from \$2 to \$2.2 billion in fiscal 1959, and from \$2.2 to \$2.5 billion in both fiscal 1960 and 1961.

For the ABC system (primary, secondary, and urban roads), extra "emergency" funds of \$400 million in fiscal 1959 are authorized. This is in addition to the \$875 million already provided.

To qualify for the extra funds, states must have the projects to be financed under contract by next December 1, and scheduled for completion before December 1, 1959. The government's matching on these funds is two-thirds instead of 90 per cent, and the states can borrow up to two-thirds of their share from the federal government.

The ABC authorization for fiscal 1960 and 1961 is \$900 and \$925 million, respectively.

Under the bill, all funds authorized in fiscal 1959 and 1960 for the Interstate and ABC systems must be apportioned to the states. This is made possible by eliminating the requirement in the 1956 Highway Act that apportionments cannot exceed the tax revenues held in the Highway Trust Fund.

Forest highway authorizations were boosted \$5 million in fiscal 1959, with \$33 million authorized in both 1960 and 1961. Funds for forest development roads and trails were also raised \$5 million in 1959, with \$30 million authorized in 1960 and 1961.

Outlays for national park roads were set at \$18 million in both 1960 and 1961; for parkways, \$16 million; for Indian reservation roads, \$12 million; and for roads on unappropriated, unreserved public lands, \$3 million. An extra \$1 million was provided for the latter in fiscal 1959.

Another section of the bill requires states to furnish proof that they have paid the costs of relocating utility facilities before being reimbursed by the federal government.

The highway measure that emerged from Capitol Hill was considerably scaled down from the one originally proposed by Sen. Albert Gore (D., Tenn.). The chairman of the Senate roads subcommittee wanted Interstate System outlays boosted by a whopping \$11 billion through 1969. But shorter-term acceleration was decided on, after the Administration opposed any radical change in the pace of the Road Program at this time.

The Administration is also against legislation to reimburse states for existing toll or free roads that are in-

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Ideal for general maintenance work, the HIAB 170 will lift up to 20' above ground level at a maximum speed of 20" per second. Control is from either side of the truck cab. Crane action is positive and accurate. 200° or 360° swing arc. When not in use, the HIAB 170 folds snugly behind the cab, taking only 13' of space. This leaves the entire truck bed open for load. Hydraulic outriggers to handle heavy loads are standard equipment.

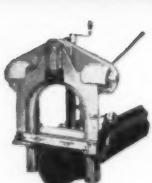
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orporated into the Interstate System. Decision on this matter, it was argued, should be suspended until more of the system is completed.

The omnibus rivers and harbors bill vetoed by Eisenhower authorizes, but did not appropriate, almost \$1.6 billion for 150 projects. Sixty-seven are for flood control, \$566.6 million; 56 for navigation, \$190.8 million; and 14 for beach-erosion control, \$11.6 million. The remaining funds, \$808.3 million, represent authorized increases for 13 river basin projects.

President Eisenhower two years ago vetoed a similar omnibus measure, claiming that many of the projects included had not been approved by the U. S. Army Corps of Engineers and the Budget Bureau. This time, he objected to some 28 projects as undesirable.

The third in the trilogy of major anti-recession legislation, the housing bill, authorizes \$1.85 billion for government-backed home mortgages and for extending the veterans' housing program for two years. In a further effort to stimulate home construction, the President lifted the down-payment requirements from government-backed home loans to veterans.

The administrative agencies were as busy as Congress in pouring out anti-recession funds, although the sums involved were not as large. The Department of the Interior, drawing on reserves of currently appropriated funds, said it was stepping up expenditures by \$25 million to speed construction of 95 reclamation projects in 30 states and Alaska. The Department of Commerce allocated a record total of \$63.5 million for 358 airport construction and improvement projects to be undertaken in fiscal 1959. The funds are matched on a 50-50 basis by local project sponsors.

The President released \$75 million in frozen funds for loans to communities for building public works, such as sewer and water facilities, and broadened the program to include cities up to 50,000 population.

On the appropriations front, the Administration asked Congress for a \$70.8 million boost in its fiscal 1959 budget for reclamation projects. This includes \$45 million for speeding construction now under way on such enterprises as the Trinity River project in California, Glen Canyon Dam on the Colorado River storage project, and the Columbia River Basin project in Washington.

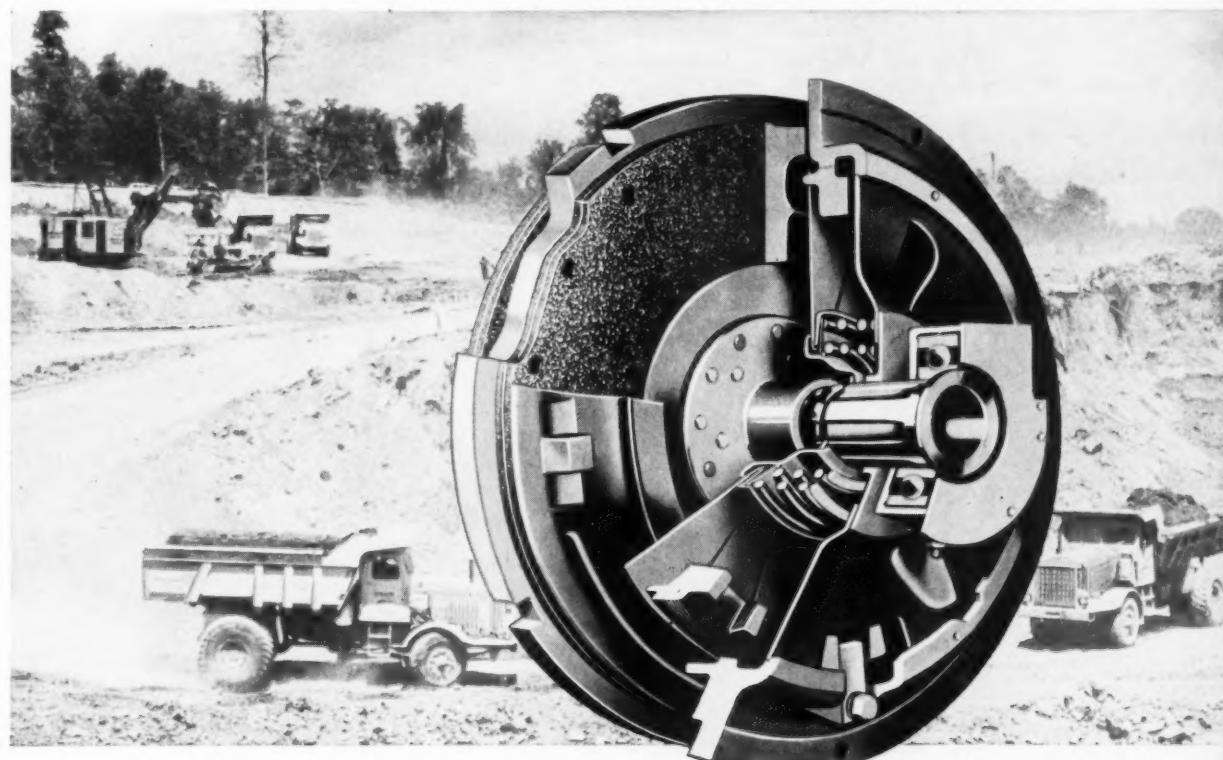
The revised budget also contemplates the letting of prime construction contracts for the Flaming Gorge Dam in Utah and the Navajo Dam in New Mexico, two key structures in the Colorado River project.

Other 1959 budgetary requests include an additional \$15 million for the Department of Agriculture's water-

shed-protection and flood-prevention projects, and \$125.2 million more for the Corps of Engineers' civil works program. Also proposed was a supplemental appropriation of \$46 million for federal aid to construct hospitals.

The Administration further urged legislation authorizing a three-year program of post office construction and modernization, at a cost of \$2 billion.

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crawling to him for
everything we want?"



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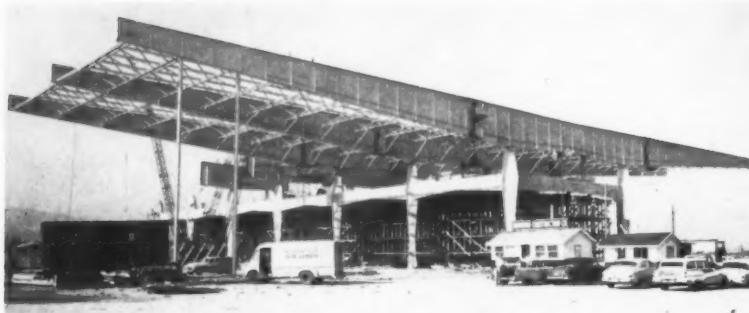
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Many of these products manufactured in Canada by Hayes Steel Products Limited, Merriton, Ontario.

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High-strength bolting cuts six weeks from time needed to erect huge girders



◀ Some of the largest welded plate girders ever produced in this country are here being erected for a maintenance hangar for United Air Lines at San Francisco International Airport. Pacific Iron & Steel Corp., Los Angeles, fabricated and erected the girders.



Steelworkers connect trusses to stiffeners along the web of one of the big girders. Bethlehem Pacific high-strength bolts, some 27,000 of them, were needed for the job.



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"Investing in America has made our country great"

"The American competitive enterprise system was founded on the work and savings of the people and has produced the highest standard of living in history.

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"Investing in America through Savings Bonds and venture capital has helped make our country great and

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Leschen appoints Germo

William C. Germo is a sales representative for Leschen Wire Rope Division of H. K. Porter Co., Inc., St. Louis, Mo. He will cover southern Wisconsin and northern Illinois. His headquarters will be in Chicago.

High water table, rains make for tough grading job



A Koehring 405 dragline loads excavated material from a drainage ditch into a Caterpillar DW10 tractor wagon. This is one phase of extending Florida State Route 435 to handle traffic at a new missile plant in Orlando.

Plagued by heavy rains and a high water table, Cone Bros. Contracting Co., Tampa, Fla., is giving a large tractor-scaper fleet a tough workout to speed construction on Florida State Route 435, to handle traffic at a new missile plant in Orlando.

The route is being extended 5.5 miles south to the plant, with an interchange at State Route 528 near the plant. Cone expects to complete the \$1,695,691 grading, paving, and drainage contract in early 1959.

Most of the terrain is flat and swampy, and only a few feet above the water table. Eight swamps, totaling nearly 40,000 yards, had to be mucked out and backfilled. Heavy rains flooded the interchange site with over a foot of water. Draglines finally opened enough ditches to drain the site, and permit work to be resumed.

Road work

During the heavy rain period, about

90 per cent of the 127,000 yards of fill was completed on the road section. Half of the sand and clay subgrade has been mixed with a Seaman Pulver-Mixer pulled by either a Cat D7 or a Tournadozer, depending on underfoot conditions. A Cat No. 12 motor grader shapes the finished roadbed.

More than 635,000 yards of borrow are being used in the interchange to build ten ramps up to 15 feet high for the five overpasses. All borrow is being excavated from a 40-acre pit.

A Koehring 405 dragline excavates the drainage ditch around the pit, and loads into four Cat DW10's with bottom-dump wagons. These units are outlining the roads through the interchange, and flooring them to 3 feet above ground level.

A 15-foot fill between two overpasses is being handled by seven DW10 tractor-scrapers pushloaded by a D8. A D7 maintains the cut, spreading the sand and clay for faster drying. The fill dumped by the scrapers



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SMALL jobs:



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For re-bars, metal lath, pipe insulation—wherever wire is applied and tied—Ideal Tie Wire Reels permit 6 to 8 more ties per man per minute . . . save 25 to 30% in wire . . . compared to dangerous coil-over-shoulder method! Ideal Tie Wire Reels refill in seconds . . . handle 14

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Rush me postpaid one Ideal Tie Wire Reel complete with wire filler. \$11.95 check enclosed Bill me I understand this is your special, one-time-only introductory price, and I may return the unit within 30 days, if not completely satisfied, for full refund.

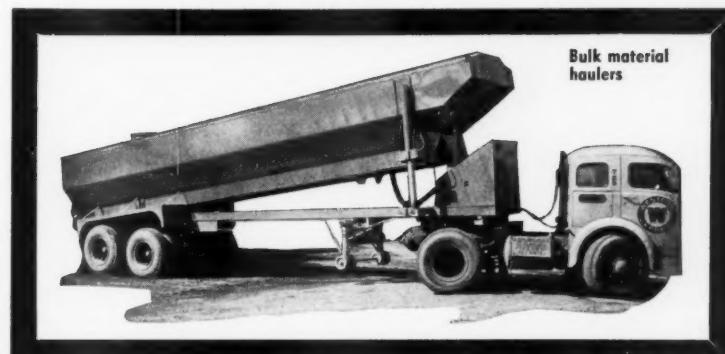
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MAY, 1958



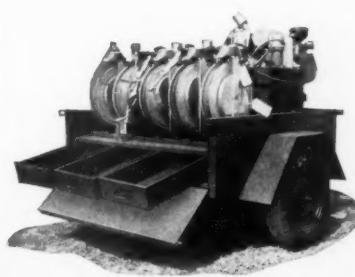
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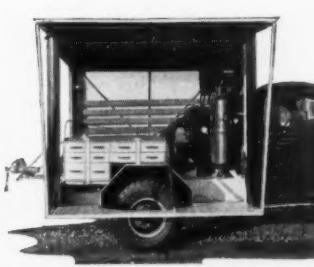
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Small, two-wheel lubeunit



Medium-size work shop

CEMCO INDUSTRIES, Inc. GALION, OHIO

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Sandy clay fill is dozed around concrete pilings by a Caterpillar D8 tractor as a Cat DW10 tractor-scaper dumps the material. The 15-foot fill is at the overpass outside the missile plant.



A DW10 returns to the borrow pit for a load of sandy clay for the fill near the overpass. A Koehring 304 crane, right, lifts concrete from ready-mix trucks for an overpass pour.

is spread by a D8. A Cat No. 12 motor grader continuously works the soft, sandy haul road to help speed the scrapers and wagons.

Excavation

The 40-acre borrow pit will be excavated down to 15 feet to provide 635,000 yards. Ground water presents

a major problem, requiring extensive drainage and the making of shallow cuts. The Koehring 405 dragline excavates a ditch around the pit. The ditch is kept about 4 feet below the floor of the pit. Two 10-inch pumps drain the ditch, and dewater the pit.

Cone Bros.' eleven DW10 tractor-scrapers are moving 2,500 yards per 10-hour day over the 7,500-foot haul. Other equipment includes a D6, two Ingersoll-Rand 300-cfm compressors, a Cat D13000-powered Koehring 605 for driving piles, a Koehring 304 with a concrete bucket for structures, and a Bantam $\frac{1}{2}$ -yard dragline excavating ditches around the interchange.

When completed, State Route 435 will have two 12-foot plant-mix asphaltic-concrete lanes, $2\frac{1}{2}$ inches thick, on $8\frac{1}{2}$ inches of pulverized limerock base, compacted to 111 per

cent Proctor. Enough right-of-way has been purchased so that the interchange can be expanded to 8 lanes in the future.

THE END

Doing It the Easy Way with SIMPLEX JACKS...



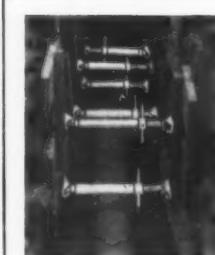
PRESTRESSING CONCRETE SLAB with a Simplex Re-Mo-Trol 30-ton hydraulic puller. When cured, 26' x 38' slab will be raised to form third story floor of school building. Intervening floors will then be cast, prestressed and raised into position. Only Re-Mo-Trol gives straight-line pull to prestressing wires through unique "center-hole", eliminates need for complicated back-up devices. Also has many uses as a powerful lifting jack on construction jobs.



15-TONS OF LIFT on either the cap or toe of this Simplex Model 24A jack is a feature that construction men like. Full capacity toe lets them lift from minimum clearances, cuts wedging and blocking necessary. Jack is ratchet lowering lever type; raises or lowers notch-by-notch — can't be tripped. 13" of lift.



TIMBER "STRETCHER" speeds shoring on foundation and tunneling work. Simplex Shoring Jacks, available in 25-ton or 35-ton sizes, are faster and safer than old-fashioned saw and wedge methods.



WHEN YOU'RE DOWN A HOLE you can feel safe with these Simplex Trench Braces on the job. Made entirely of drop forged steel. Easy to adjust, grip at any angle, can be nailed to timber for slip-proof safety. For any width trench.

SIMPLEX CONSTRUCTION JACKS are fully described in General Catalog. Write for a free copy.

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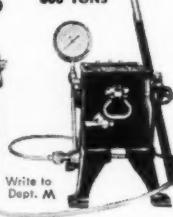
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CONTRACTORS AND ENGINEERS



◀ The "dean of the earthmoving industry", R. G. LeTourneau, stands beside a gigantic "electric wheel" machine, developed for the Air Force to remove crashed bombers from runways. The firm bearing his name has just re-entered the earthmoving equipment business after a five-year absence.

LeTourneau firm re-enters the earthmoving industry

After a five-year absence, R. G. LeTourneau, Inc., Longview, Texas, re-entered the earthmoving-equipment industry on the first of this month. Robert G. LeTourneau, president, states that only planning has begun, and it will be a few months before the firm can talk intelligently about what the first machines will look like or the work they will be able to do.

LeTourneau asserts it is reasonable to assume the firm might start out with a 25 to 30-ton scraper in the \$40,000 to \$50,000 class, and another with a capacity about three times that in the \$100,000 class.

One of the results of the five-year

absence is the "electric wheel" power system, developed by the firm for its gigantic non-earthmoving machines, and which the company plans to introduce to earthmoving for the first time. In essence, the system is a relatively simple arrangement of powerful electric motors geared directly to the centers of every individual wheel of a machine, and to all other points on a machine where power is used.

The reason for the LeTourneau firm's absence stems from the time Westinghouse Air Brake Co. bought out LeTourneau's earthmoving business and formed a new subsidiary, the LeTourneau-Westinghouse Co. A provision in the sale stipulated that the original LeTourneau company remain out of the earthmoving field for a five-year period.

Minneapolis-Moline promotes Kiener, Hipwell

Clem A. Kiener has been named assistant general sales manager at the Hopkins, Minn., general offices of Minneapolis-Moline Co., Minneapolis. The former regional sales manager of the Columbus, Ohio, office, will now be responsible for reporting on the domestic, export, and industrial sales divisions, and for market research, product merchandising, advertising, customer services, parts, service, and technical publications.

Roger R. Hipwell, product manager, has been appointed manager of advertising and sales promotion for the company. He succeeds John Rusinko, who resigned. Hipwell has been with the firm for eighteen years.

Edward Brause promoted to M-C&S vice president

Edward Brause, director of public relations for Merritt-Chapman & Scott Corp., New York City, since 1950, has been made vice president of public relations for the contracting firm.

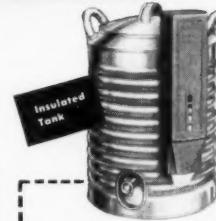
Brause, who will work under Robert E. Harvey, senior executive vice president, is responsible for coordinating the public relations activities of all M-C&S operating divisions and subsidiaries. They include Devoe & Reynolds Co., Inc., Louisville, Ky., New York Shipbuilding Corp., Camden, N. J., and Tennessee Products & Chemical Corp., Nashville.

Before joining M-C&S, Brause was a New York City newspaperman for several years.

For more facts, circle No. 393.



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AJAX® CUPS and Drinking Water Tanks deliver fresh water to workers — mean less time lost on the job. 4 oz., 6 oz. and 7 oz. cups, imprinted with assorted stock safety messages at no extra cost — or your own message to order. **AJAX** Cups and Dispensers are ideal for use with any tanks, barrels or pipeline faucets.



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Why don't you take advantage of the three-way protection offered by **AJAX** complete drinking water service?

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Kotal Stockpile Mixes are tough, more stable and more durable — they will not "kick out" under heavy traffic. They resist the stripping action of water and the asphalt surface retains its life far beyond normal service expectancy. For roads that have suffered the extremes of freezing and thawing — use workable, all weather Kotal Stockpile Mixes — the mixes that are immediately available from stockpile and workable regardless of weather conditions.



KOTAL PROCESSED STOCKPILE MIXES ARE SPECIFICATION MIXES IN MANY STATES

THEY ARE ECONOMIC — SAVE TIME, LABOR & MATERIALS

Some exclusive franchises still available.

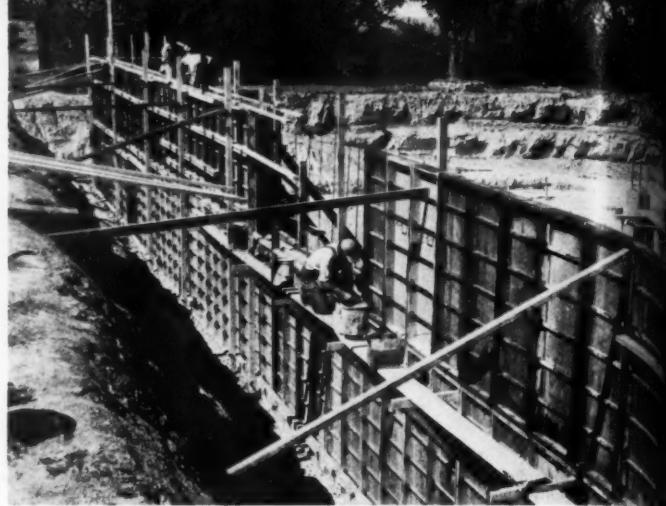
New 2-color brochure available on request.

KOTAL Company

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Half a dozen jobs on the Connecticut Turnpike were handled by this Michigan Model 180 tractor-dozer. Here the unit grades a 50-foot-wide strip, but it also backfilled around abutments and overpasses, and dug up roots and stumps on the 3-mile section contracted to Poirier & McLane Corp., New York City.



Prefab wall forms for the addition to the Rock Island, Ill., high school are made ready for a pour. About 12,000 square feet of Symons panels are being used on the 225,000-square-foot forming job. C. H. Langman & Son, Rock Island, expects to complete the \$2 million job in 1959.

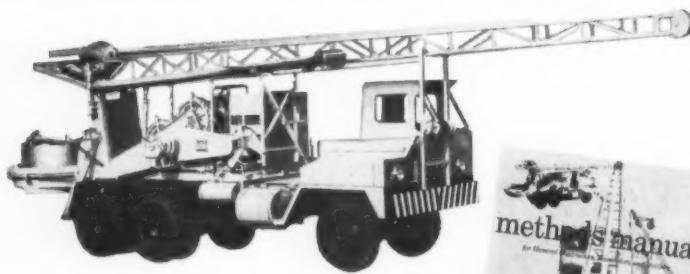


"Big Bore" Drilling for as little as 18¢ per foot

CALWELD HAS THE CAPACITY to do many excavating jobs. A big Calweld bucket type drill digs fast... down to a 45-foot depth in one hour. It digs big... holes up to 10 feet in diameter. It digs deep... down to 200 feet. It digs with precision... absolutely vertical holes to exact specification. It takes a 1½ yard bite... with each pass.

Take another look at the Calweld bucket type drills. They are big, fast and maneuverable—and they offer a new and more economical method of pre-boring for concrete piles, excavating for foundations, excavation shoring, manholes, cesspools, soil testing and hundreds of other jobs.

MOBILE AND MANEUVERABLE DRILLS 10" to 120" HOLES 200 FT. DEEP



New "Methods Manual for General Contractors and Excavators." A 16-page booklet filled with job facts and methods used in all types of construction jobs. Write for free copy.

CALWELD DRILLS

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For more facts, use Request Card at page 18 and circle No. 394

President vetoes bill for river and harbor projects

Legislation authorizing \$1,704,028,-300 for development of rivers and harbors and flood-control projects has been vetoed by President Eisenhower.

The President rejected one of the chief arguments of its sponsors, that the bill would provide a needed stimulus to the national economy. He also said it would take months before plans could be completed and construction started on many of the projects contemplated. For larger projects it would take years, he stated.

President Eisenhower approved of 14 previously authorized river basin plans for which the bill would provide authority to appropriate more than \$800 million, and asked that additional amounts be provided for them. On the bill are 140 other water resources development projects involving outlays estimated at \$900 million. The President said many of these would make important contributions

to the national wealth, but that others were not justified.

Eisenhower suggested that in the future, Congress should include in an omnibus bill only those projects that had been approved by the chief of the U. S. Army Corps of Engineers and to which the Executive Branch had no objection. He also suggested that all other waterways and flood-control projects receive attention as separate legislative measures and be debated on their individual merits.

Cleveland Trencher news

Norman V. Grund, assistant to the president of The Cleveland Trencher Co., Cleveland, Ohio, has retired. Grund's retirement followed a severe leg injury he received last November. He has been with the firm for 17 years.

Grund is a member of the American Road Builders' Association, the Construction Industry Manufacturers Association, and other trade societies.

Possible building losses from fire, natural causes

The National Board of Fire Underwriters has issued a 22-page booklet entitled "Building Loss Possibilities from Fire and Natural Hazards". It discusses the causes of such losses, and suggests ways to provide safeguards against them. The booklet is aimed at builders and others having a financial interest in buildings.

Some of the topics deal with the proper type of building construction; enclosure of stairways, elevators, and other floor openings; roof coverings; fire resistance of load-bearing walls and columns; heating, ventilating, and air-conditioning systems; and fire-extinguishing systems. Also discussed are earthquakes, floods, lightning, termites, windstorms, and reference codes and standards.

Single copies of the booklet may be obtained from the National Board of Fire Underwriters, Engineering Department, 85 John St., New York 38, N. Y. Those living in the Middle West should write to 222 W. Adams St., Chicago 6, Ill.; and those west of the Rockies to 465 California St., San Francisco 4, Calif.

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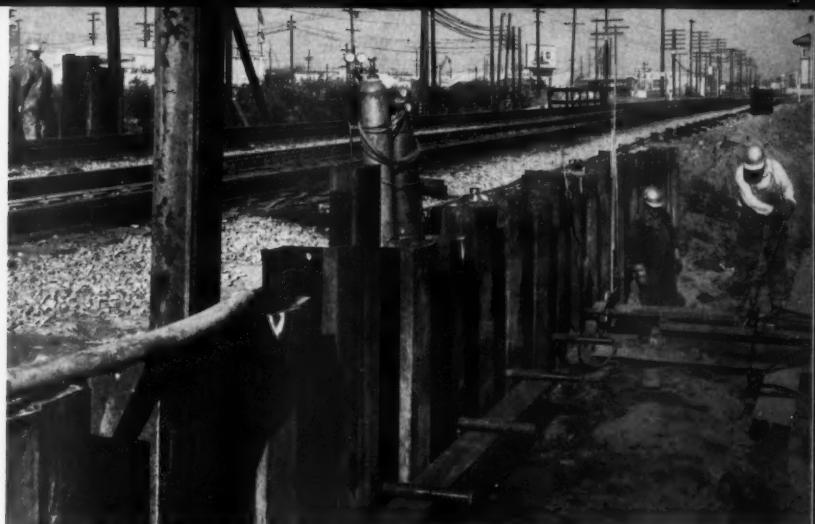
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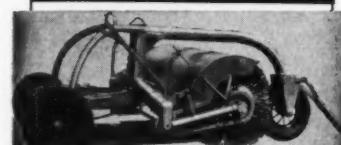


Increased tonnage is achieved in a Thornton, Ill., quarry where this Dart truck is being loaded by a Marion shovel. Material Service Corp. replaced twelve other units with eight of these big Dart trucks, powered by Cummins 425-hp diesel engines, and increased production and cut manpower costs by one-third.



Rows of 43-foot steel rods, produced by Bethlehem Pacific Coast Steel Corp., hold steel piling vertical to contain the roadbed of the Southern Pacific Railroad in Burbank, Calif. This is preliminary work that has to be done before construction gets under way on a U. S. Army Corps of Engineers flood-control project.

Grace ASPHALT AND COMPACTION EQUIPMENT



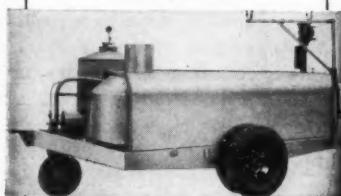
Roadsweepers, traction, engine-driven or tractor-mounted



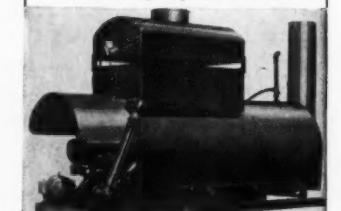
Sheepfoot rollers



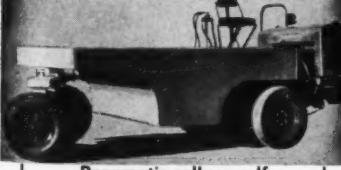
Chip spreaders



Circulating asphalt heaters



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Pneumatic rollers, self-propelled or trailed

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For more facts, circle No. 396

MAY, 1958

AITC appoints Purcell

John K. Purcell has been appointed director of public information of the American Institute of Timber Construction. He will make his headquarters in Washington, D. C.

Purcell has held similar posts with Aircraft Industries Association, Capital Airlines, and the U. S. Government. Prior to entering this field, he was a news correspondent with *Time Magazine*. He is a member of the National Press Club in Washington, D. C.

The theory and practice of agricultural drainage

The theory and practice of agricultural drainage are contained in the 600-page "Drainage of Agricultural Lands," Volume 7 of Agronomy Monographs published by the American Society of Agronomy.

Edited by James N. Luthin, the book is divided into five parts, the first of which discusses the physics of land drainage: the nature of soil constituents, internal soil architecture, static equilibrium of soil water, laws of soil water movement, and the physical nature of drainage problems. Approximate solutions to drainage flow problems, water table in equilibrium with rainfall or irrigation water, ponded water, theory of drainage by pumping from wells, and soil anisotropy and land drainage are developed in the second part.

Part three deals with engineering aspects of land drainage: engineering, drainage of irrigated lands, and drainage in humid areas. Methods of measuring soil permeability and field investigations are covered in drainage investigation methods. The last part discusses land drainage in relation to soils and crops: soil physical conditions in relation to drain depth, salinity and alkali problems in relation to high water tables in soils, and crop responses at excessively high soil moisture levels.

The \$11 book may be purchased from the American Society of Agronomy, 2702 Monroe St., Madison 5, Wis. Current members of the society receive a 15 per cent discount.



NEW YORK INTERNATIONAL AIRPORT where the contractor's word for shoring is ADVANCE

Today, contractors from Manhattan to the Golden Gate are freeing themselves of concrete shoring problems. Through employment of BEAVER-ADVANCE free Engineering and Field Service, along with the speed, safety and convenience of ADVANCE Scaffold and components, they not only expect, but are sure to get, progress and profit on every shoring job.

So, whether your next project involves shoring, masonry, or any of the numerous building activities applicable to scaffold, you'll find it will pay to talk things over, first, with your ADVANCE representative. He has the full backing of a firm with reputation, experience, know-how and facilities—second to none in the industry.



Workmen set stringers in place for support of panned forms



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A new building for International Business Machines Corp. goes up on Florida Avenue in Baton Rouge, La. James A. Teague, Baton Rouge contractor for the project, uses a Bucyrus-Erie H-5 Hydrocrane to erect steel for the structure, one of the newest and most modern office buildings in Louisiana's capital.



Rock slides from an Athey PR21 rear-dump body, pulled by a Cat DW21, at the site of a hydroelectric plant, Noxon Rapids, Mont. Six of these combinations are being used on the project. Washington Water Power Co., of Spokane, Wash., will complete the powerhouse and dam in 1959.



has 3 speed-up features

This new G-800 self-propelled Tracdril provides a completely mobile drill mounting . . . can be "spotted" into position with ease! It takes uneven ground in stride . . . tows its own compressor up steep grades. With feed motor moved to rear of drill carriage, toe-holes are started only 6" from bottom. On top-holes, drill controls stay in easy reach.

Two heavy-duty deep-hole drills now available with standard-neutral-reverse rotation for use with coupled steel: CP-400DR, 4" cylinder bore, 2½" holes to 50 feet; and CP-450DR, 4½" cylinder bore, 3" holes to 75 feet. Chicago Pneumatic Tool Co., 8 East 44th St., N. Y. 17, N. Y.



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Construction resumes on AASHO Road Test

Construction has resumed at the American Association of State Highway Officials' Road Test at Ottawa, Ill. The \$22 million highway research project will test widely varied thicknesses of pavement, under truck axle loads ranging from 2,000 to 30,000 pounds on single axles and 24,000 to 48,000 on tandem axles.

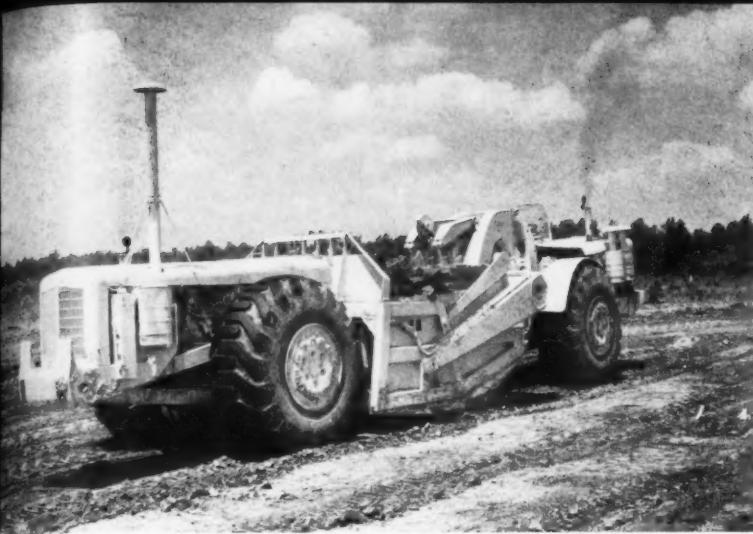
The test facility—six loops containing 836 separate test sections—will be completed and ready for traffic in late summer. The test sections will have nearly 200 different combinations of thicknesses of surfacing and underlying layers of material. Traffic will run in 10 lanes in five test loops about 18 hours a day, six days a week for two years. A complex system of instruments, many developed specifically for the project, will help measure and record the effect of the traffic on the pavements. The final results are expected to be valuable to highway engineers and administrators, legislative bodies, and vehicle manufacturers.

The project is sponsored by the AASHO, and administered by the Highway Research Board. Construction is being directed by the Illinois Division of Highways, with a special task force under the supervision of W. E. Chastain, Sr., engineer of physical research. The final phases of construction are under a \$5,690,000 contract awarded last year to the S. J. Groves & Sons Co., Springfield, Ill.

Cost of the project is being shared by the 48 states, District of Columbia, Hawaii, Puerto Rico, the U. S. Bureau of Public Roads, the Automobile Manufacturers Association, and the American Petroleum Institute. The Department of Defense will furnish Army troops to drive test vehicles.

The project is on the right-of-way for a future east-west highway in the Interstate System. When the research has been completed, the test pavement will revert to the State of Illinois. After rehabilitation, the test road will be incorporated into the highway network.

W. B. McKendrick, Jr., heads the Highway Research Board's staff for this project.



Heavy earthmoving is required for an extensive levee project in the Yazoo section of Mississippi. This Euclid TS-24 twin-power scraper loads material in a borrow area being used to supply material for the levee. Ford Construction Co. of Dyersburg, Tenn., holds the contract for this work.



A section of a gas pipeline that will run between Morris, Ill., and Chicago is lowered into position by a trio of International TD-24 crawler tractors with Superior sidebooms. Midwestern Constructors, Inc., Tulsa, Okla., averages 4,000 feet of pipe per 10-hour day on this 51.9-mile project.

Portable drill cuts through reinforced concrete for pile footings

To erect a 200-ton concrete and ceramic veneer pylon at Fort Moore Pioneer Memorial in Los Angeles, Calif., John L. Meek Construction Co., Inc., Los Angeles, had to pierce an existing reinforced footing of a wall retaining 51 feet of earth. To support large vertical and overturning loads directly above the footing, the contractor had to use 46-foot \times 24-inch-diameter friction piles, which would support the new loads without impairing the bearing value of the soil under the existing footing.

Three of the piles pierced the existing footing at a point where it was approximately 30 inches thick.

Structural engineers specified core drilling in preference to impact cutting, in order to assure the minimum amount of concrete being removed; to avoid breaking the bond of the concrete to the 1 1/4-inch steel reinforcing rods; and to prevent spalling on the bottom of the footing and exposing the reinforcing steel to corrosion.

A Truco Model B portable diamond drilling machine was set up and anchored to bolts set in the existing footing, enabling the drill to pivot in a circle. Truco 3-inch-diameter diamond drill bits were used for the 30-inch-deep cut; and a Truco water swivel supplied water to flush away cuttings and keep the diamonds cool.

Twenty-nine overlapping holes, 3 inches in diameter, were drilled in a circle, providing a 30-inch-diameter hole with a 27-inch core that weighed over a ton. Each 30 \times 30-inch hole was completed in an average of 29 hours.

When the holes were finished, a plywood template provided exact centering for a Sonotube fibersleeve form surrounded by an approximately 2-inch sand bed; this gave a 3-inch cushion between the existing foot and the new work, and brought the area to the specified diameter for the 24-inch piling. A similar 2-inch sand bed on top of the footing cushioned it from the new concrete slab.



A 200-ton concrete and ceramic veneer pylon for the Fort Moore Pioneer Memorial in Los Angeles, Calif., required footings to be constructed in a 51-foot retaining wall. This Truco Model B portable diamond drill was used to sink 3-inch-diameter holes around a circumference of 30 inches so that a pile footing could be installed.

The chain tape that's truly called "DRAG TAPE"



This tough, rugged chain tape is justifiably called a "drag tape". It withstands the rigors of daily field use in all kinds of terrain. It outlasts most other tapes because . . .

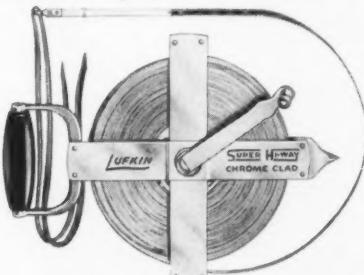
It Has Raised Markings and protective borders that are a part of the actual tape and will last as long as the tape itself.

The Line Is 5/16" Wide of special analysis steel that resists kinking and breaking.

It Is Chrome Clad, an all-metal finish. The line is built up with a series of electroplatings, with a final hard satin-chrome finish that is resistant to abrasion, rust and corrosion.

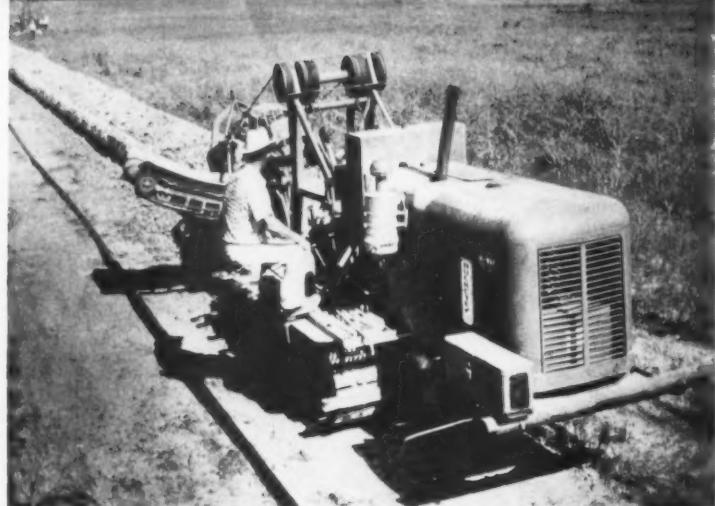
It Is Easier To Read. The raised markings stand out sharply against the jet-black background; cannot be obliterated by mud and dirt.

The **SUPER HI-WAY Drag Tape** is furnished in 100, 200 and 300 foot lengths, either with or without reels. Two leather end thongs and a chainman's conversion rule are supplied with each tape. Choice of three styles of end markings.

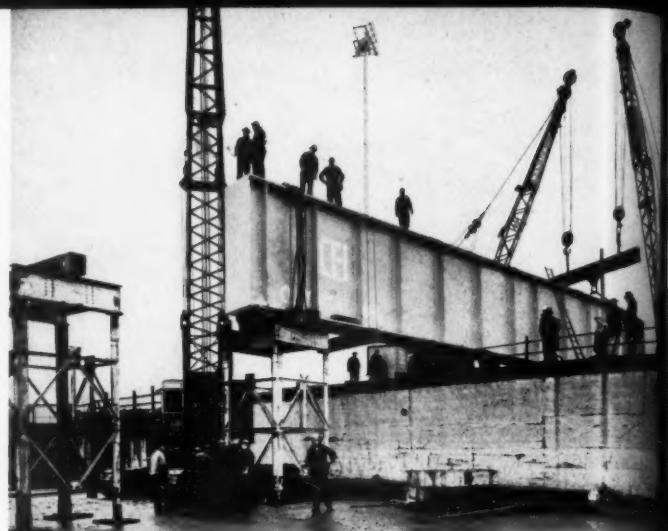


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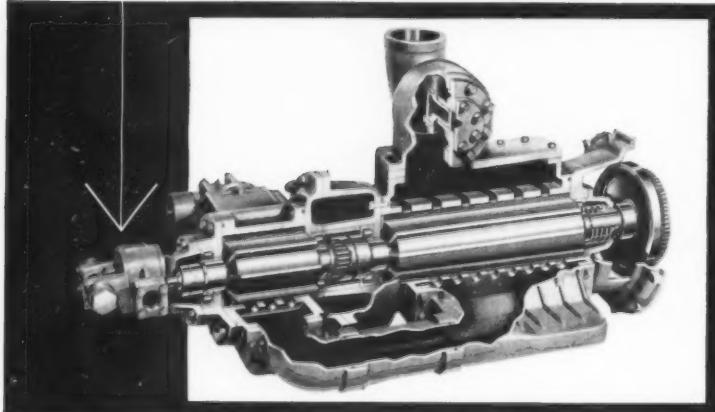


A 30-inch trench for a gas pipeline is opened up near Bay City, Texas, by this Gar Wood-Buckeye 305 dumper, owned by the G. W. Townsend Lease Service Co. The new pipeline will link the Whitclay Oil Co. gas well and the Tennessee Gas Co. line that runs to the east coast.



The largest piece of structural steel for the Calumet Skyway Toll Road in Chicago, Ill., is lowered into place by Manitowoc cranes. The 126-ton double-web box girder was fabricated at the Clayton, Del., plant of Colorado Fuel & Iron Corp.

JAEGER DEPENDS ON ROPER PUMPS ...SO CAN YOU



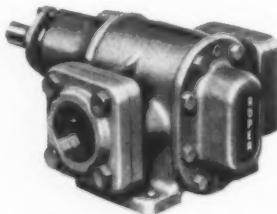
TWO STAGE ROTARY COMPRESSOR COOLED BY ITS OWN LUBRICATING OIL

Typical of Roper adaptability to heavy duty equipment is this installation on the Jaeger Roto Air-Plus, 2-stage rotary compressor. The pump sprays cooled, filtered oil onto the rotor and bearings in high and low compressor cylinders in order to lubricate all surfaces and seal against air leakage. The efficiency of the cooling system insures cool operation in ambient temperatures exceeding 100°. Arrangement of the system is such that oil-free air reaches the air service valve.

The Jaeger compressor has established service records of maintaining 100 lbs. constant pressure for 160 hours, without let-up — a tribute to the unit's dependability, and the Roper that helps cool it.

For OEM... Specify ROPER

In this instance, the Series K pump is suited to the Jaeger application. This series is available in sizes $\frac{1}{4}$ to 50 GPM, pressures to 150 PSI. It is a rotary gear unit, with sizes 10 through 50 featuring the patented venturi suction and discharge principle for smooth, quiet operation.



Send for Bulletins Today

ROPER
HYDRAULICS, INC.

355 BLACKHAWK PARK AVE., ROCKFORD, ILL.

For more facts, use Request Card at page 18 and circle No. 400

Revised safety handbook from welding association

The American Welding Society has issued a revised edition of "Safety in Welding and Cutting". Prepared by the American Standards Association, the \$2 handbook is available from the AWS, 33 W. 39th St., New York 18, N. Y.

Topics discussed include the installation and operation of gas-welding and cutting equipment; the application, installation, and operation of arc-welding and cutting equipment; and the installation and operation of resistance welding equipment. The remaining chapters cover fire prevention and protection, protection of personnel, and health protection and ventilation. A bibliography and a list of AWS standards and books conclude the handbook.

Eisenhower signs roads funds bill

President Eisenhower has approved legislation authorizing a \$1.8 billion increase in federal spending on highway construction this year. However, the President voiced "serious misgivings" about some provisions, and called attention to certain "grave defects" that could create unfortunate precedents.

Chief among these was the departure from the long-established prin-

ciple of 50-50 sharing of costs between the federal and state governments. Under the new bill, a 2 to 1 ratio has been established whereby the states would contribute only half as much as the federal government toward the \$1.8 billion increase.

This new increase in the highway authorization measure raised to \$5.5 billion the amount of approved spending this year on the over-all federal-state roads program. Separate legislation is no longer required to appropriate the money, which is drawn from a Highway Trust Fund built up from gasoline and other highway-use taxes.

Universal Motor appoints

Dwight Pickering has been appointed assistant to the president of Universal Motor Co., Oshkosh, Wis. He has been in purchasing and production planning in the electric power and light plant field.

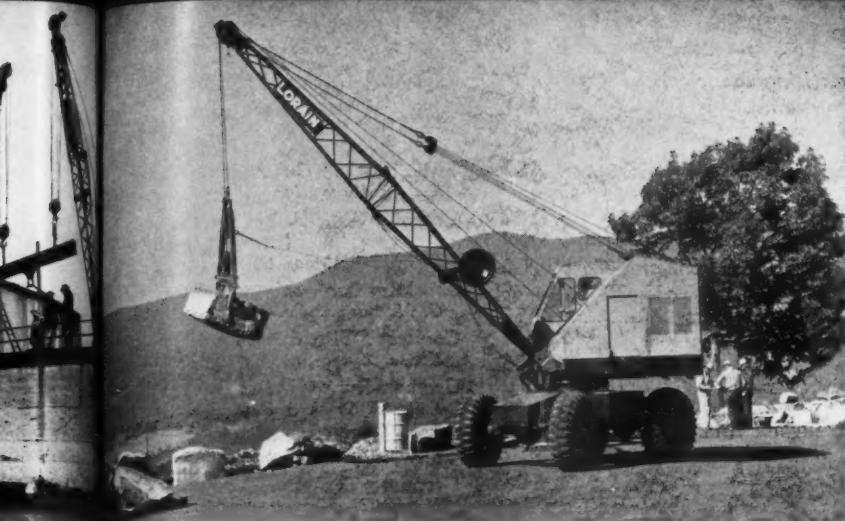
Freyssinet names Price

Harold A. Price has been appointed the West Coast representative of Freyssinet Co., Inc., New York, N. Y., consultants in prestressed-concrete construction. He will make his headquarters in Napa, Calif.

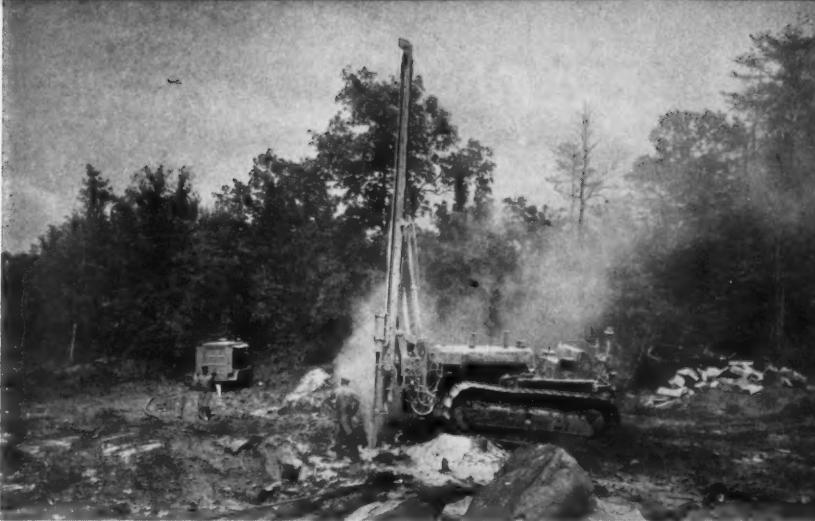
Price is vice president and a director of the Prestressed Concrete Institute.



FOR OUTSTANDING CONTRIBUTIONS in the field of construction during 1957, Arthur J. Benline, left, receives a plaque from Anthony F. Ardizzone, president of the Society of Construction Superintendents, Inc. Benline is the technical director of the New York State Building Code Commission.



II Road in
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plant of
Stone block, lowered by a Lorain Model SP-107 self-propelled crane, forms a natural guardrail along the Skyline Drive in Shenandoah National Park, Va. A. B. Torrence Co., Inc., Elkhorn, Va., contractor, equipped the 7-ton crane with a special rock grab to handle the 6,000-pound blocks.



Preparing for 160,000 yards of excavation in a 2,000-foot road cut in Jackson County, Ala., a Joy TM-500 Challenger puts down 44-foot-deep holes in limestone. It is mounted on an International TD-24 and powered by a Chicago Pneumatic 600-cfm compressor, left. Ed Bentley, Sylacauga, Ala., is handling the 8½-mile job.

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Techniques and machinery for compaction treated in manufacturer's booklet

"Modern Compaction Methods and Equipment" is the title of a new booklet that has been put out by Bros Inc., Minneapolis, Minn.

Prepared by Bros Inc. after the firm had received an increasing number of questions on compaction—some of them showing gaps in a knowledge of the subject—the booklet contains some recently published articles on specific compaction problems and uses of equipment.

The articles, well illustrated, have been written by Bros executives, members of the U. S. Bureau of Public

Roads, and Ohio Department of Highways personnel.

The articles deal with rubber-tire rolling; compaction of asphalt mixes; results of some compaction tests in Licking County, Ohio; modern compaction methods; compaction control; some practical aspects of vibratory compaction; and stage compaction on cohesive soils.

A glossary of commonly used compaction terms is included in the booklet, which may be obtained by writing the company at 1057 Tenth Ave. S. E., Minneapolis 14, Minn.

Collins promoted by Reo Division

George R. Collins has been made general sales manager of the Reo Division of The White Motor Co., Lansing, Mich.

In his new position, Collins is responsible for the sale and distribution of Reo medium-heavy and heavy-duty trucks in this country and abroad, as well as the company's parts and serv-

ice sales. Collins joined Reo in 1947, and started work in the engineering department. He left briefly, but returned in 1953, when Reo purchased Pal Products Co., to become assistant general manager of that plant in Michigan City, Ind. In 1954, he returned to the Lansing factory as assistant sales manager.

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Extra large deluxe head.
28" lens area. Incandescent
brilliance. Rotates 90°.
Theft-proof mounting.

Head of
Rugged
Plastic

Sturdy Steel
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40", and
48" panels.
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for easy transportation.

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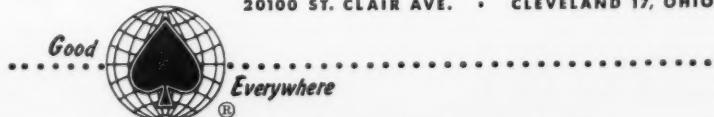
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The coming of spring has again turned the fancy of our roving editorial staff to the new, the interesting, or to the unusual construction projects now under way. Or perhaps to where some aspect of the construction industry is making news and should be studied and reported. Or even to check a time and money-saving method or device that some contractor has developed, is proud of, and is eager to talk about. Our editors are traveling in all directions these

days, in their steady pursuit of material to give our readers complete and first-hand helpful information on their business and industry.

For instance, Bill Darden has just returned with a book full of notes and a file of film to be developed, from a jaunt through the East, West, and South. Bill visited several leading contractors' maintenance shops, both at their permanent headquarters and in the field, to report on their methods, practices, and equipment used, for the Maintenance section in our June Efficiency and Economy issue.

Ralph Monson, from his home base on the West Coast, is following the sun around on a field trip through southern California, Arizona, New Mexico, and Texas. Bill Allen, our field editor in the Midwest, has gone south from his Michigan headquarters to report on construction work through the Mississippi Valley, all the way down to the Gulf Coast.

In the East, Tony Mavroudis has returned from a trip to the Deep South and is currently off on a swing through Pennsylvania, Ohio, and West Virginia. Bill Dowdell is traveling vicariously right now. An explorer-trader just came back from Latin America with pictures and notes of work on the Pan American Highway in Guatemala. Bill is helping him get the story of the work—including a landslide on one of the sections—on paper for an early issue. Ed Mannix, in between looking after our new products and current literature departments, is picking up some scientific knowledge about testing laboratories, in a short course he is taking. Ed travels only to neighboring New Jersey for that chore.

The long-distance traveler of the month, however, is Bill Quirk, who flies out of Idlewild on May 3 to attend the Third International Congress of Prestressed Concrete in West Berlin. At the close of that important meeting on May 10, Bill is joining a group taking a Concrete Industries Study Tour for the remainder of the month. The prestressed-concrete tour is scheduled to visit concrete product plants, and to meet trade association and government officials in the leading cities of seven European countries: Sweden, Denmark, England, France, West Germany, Belgium, and the Netherlands. At the end of the formal tour, when the rest of the group returns to this country, Bill is planning to fly eastward for an editorial field trip covering Poland. No wonder this place has an empty look at times.

Don Buttenheim
PUBLISHER

The National Bituminous Concrete Association predicts that an additional 26.6 million tons of blacktop will be produced this year.



In carrier landings, planes coming in at more than 100 knots are stopped in a split second. This amazing performance is made possible by having each plane hook onto one of several wire ropes stretched across the flight deck. Both plane and rope receive an almost unbelievable shock at the moment of contact. Needless to say, only top-quality wire ropes can be used for this application because . . .

you can't bargain with safety

While your use of wire rope differs from this carrier application, safety should be just as important to you. For, although a "bargain" rope may save you money, it can cost you your peace of mind. So don't bargain with safety. Buy a rope that's a quality rope—buy Wickwire Rope.

5049



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THE COLORADO FUEL AND IRON CORPORATION—Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
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WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) • New Orleans
New York • Philadelphia

For more facts, use Request Card at page 18 and circle No. 406

QUICK CHANGE ATTACHMENTS MAKE TROJAN 'A JACK OF ALL JOBS'

Contractors today must look for equipment capable of performing more than a single task on an over-all operation . . . Trojan tractor shovels, with their variety of easily mounted, quick-change attachments, fill this much needed requirement . . . Each attachment handles a separate job function, thus reducing the need for a yard full of specialized equipment . . . Probably the most important aspect to be considered is that Trojan may now utilize its full productive capacity by working all year 'round without let-up due to climatic conditions . . . A Trojan tractor shovel is *your 'jack of all jobs' machine!*

CRANE HOOK

... lifts, carries and loads a variety of heavy parts such as pipe and is ideal for many yard operations.

PALLET FORKS

... handle logs, pipe, lumber and stacked loads for increased usefulness in industry and construction.

HIGH LIFT ARMS

... give longer reach for loading high bins and trucks. Combined with pallet forks, perfect for industrial loading jobs.

SNOW PLOW

... designed for easy attachment and removal—particularly useful for city and township snow removal operations.

BULLDOZER BLADE

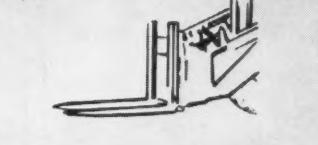
... makes use of Trojan's straight line horizontal thrust for high performance on close grading and backfilling jobs.

ENCLOSED CAB

... provides added safety and all-weather operation. Trojan's reverse curve arms never trap the operator in the cab.



CRANE HOOK



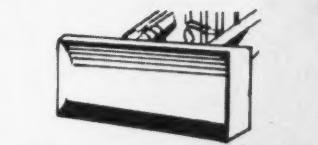
PALLET FORKS



HIGH LIFT
ARMS



SNOW PLOW



BULLDOZER BLADE



ENCLOSED CAB



TROJAN
*REG. U. S. PAT. OFF.

YALE & TOWNE

TRACTOR SHOVELS

2 & 4 Wheel Drive Front-End Loaders

CONTRACTORS MACHINERY DIV., THE YALE & TOWNE MANUFACTURING COMPANY, BATAVIA, NEW YORK; SAN LEANDRO, CALIFORNIA

For more facts, use Request Card at page 18 and circle No. 407



Job: remove 1,000,000 cobblestones plus 30,000 square feet of concrete

Loading costs threaten profits until N.Y. firm buys this 2 3/4 yd Michigan

Due to extremely rigid job specifications and unusually tough material, Triboro Asphalt Company, Flushing, New York, faced a substantial loading problem in stripping 31 blocks of six-lane Third Avenue in Manhattan. Recognizing the advantages of a single machine with speed and power to keep costs from getting out of hand, they asked NYC distributor United Tractor & Equipment Corp to demonstrate a 2 3/4 yd Michigan Tractor Shovel. When they saw, they bought!

Replaces big crawler

The 24 mph Michigan replaced a 3 yard crawler loader. "The crawler was too slow . . . too often blocking traffic . . . and it couldn't get big enough loads to

maintain the desired production pace," according to Supt James Magnotta. Smaller crawlers, attempting to load heavy granite-slab cobblestones, tore out final drives and ended up in the shop. Two big rubber-tire loaders, which had a crack at the job, were sent back to the yard. "They didn't have either the power or the traction needed," said Supt Magnotta.

Does job in 27 days

So the Michigan, working alone, piled and truck-loaded *all the cobblestones*. Over a million of them were handled, according to engineers. Each measured about 8 x 12 inches, weighed about 15 lbs. Individual bucket loads averaged 250 blocks each . . . 3,750 lbs. *The entire job was done in 27 eight-hour days . . . far faster than other stripping contractors doing the same kind of work with power shovels and crawler-loaders elsewhere along Third Avenue.* "Far better too," adds Magnotta. "Our Michigan left the sub-base clean after only one pass. Sensitive controls let the operator keep just enough down-pressure on the bucket. All we had to do before laying asphalt was level a few spots."

Breaks out concrete

After several days, the Michigan operator became so enthusiastic about the power of his machine, the street

foreman tried to tame him down. He gave orders to break out and load some concrete pipe-vault roofs. Even this tough problem had a simple solution. By working bucket edge under the vault and using Michigan's terrific breakout, operator easily broke it loose. Concrete patches and driveway extension, some 15 to 50 square feet, proved just as easy. "I put in some terrific days running around the job like a pickup truck," says operator, Fred Cerbone. "Did a great amount of work yet was less tired at the end of a day than on anything else I've operated in my 25 years with Triboro."

How to cut costs

Triboro's Michigan did more than boost operating efficiency. It helped cut many dollars of expense from the multi-thousand dollar paving project! As every contractor knows, bidding is extremely competitive on the kind of job; by handling loading and clean-up efficiently, the Michigan kept these expense items from eating profits.

With Clark torque converter, power-shift transmission, power steer, and planetary-wheel axles standard on all models, Michigans deliver more usable power, traction, and speed than any other machines of the type. If you're willing to be convinced Michigan is a class by itself, do what Triboro did: ask for a demonstration. You name the job!



Six-inch concrete slab breaks quickly as Michigan applies its tremendous breakout action. Fast work by the Michigan made job much safer for maintenance of normal highway traffic.

For more facts, use Request Card at page 18 and circle No. 408

Michigan is a registered trade-mark of

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Construction Machinery Division
2407 Pipestone Road
Benton Harbor 44, Michigan
In Canada: Canadian Clark
St. Thomas, Ontario



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